City Manager L. P. Cookingham meets the "junior citizens" on their tour of Kansas City operations. See "People and Government Travel Together" on page 88 of this issue.

Where a pavement meets a severe test

Newark *(N. J.)* Airport

OPERATED BY THE PORT OF NEW YORK AUTHORITY

Laying resilient, heavy-duty Texaco Asphaltic Concrete paving on this airport's loading area

The Standard Bitulithic Company of Newark constructed the two-course, 4-inch Texaco Asphaltic Concrete pavement on Newark Airport's loading area.

The pavement constructed on the loading area of a major airport must possess exceptional ruggedness, if it is to give lasting service with low upkeep cost. While moving over the airport's runways and taxiways, the big commercial airliners which land at Newark are partially airborne, reducing the load on the runway or taxiway pavement. However, while these planes receive and discharge passengers and cargo on the loading area, the pavement here must support the airliners' full weight.

On Newark Airport's loading area, the Port of New York Authority is constructing a two-course Texaco Asphaltic Concrete pavement, four inches thick, over a bituminous penetration macadam foundation. This resilient, heavy-duty pavement is a logical choice wherever traffic conditions are most severe—including a city's principal thoroughfares.

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Can You Guess the Name of This City?

It's a very important city to many millions of people, but you won't find it on the map. It's the Telephone City that the Bell System has built since the war. Every building shown in the picture is a telephone building.

We've taken 392 major building projects and additions that the Bell System has completed throughout the country and had the artist show them in one picture. And that's only one-seventh of the Bell Telephone buildings erected or enlarged since V-J Day. There wasn't room for 2400 others.

These buildings are more than brick and stone and telephone equipment.

They are jobs for thousands of men and women. They are more business for the towns and cities in which they are located. They are more and better telephone service for millions of telephone users.

When you look at all these buildings you can see how the Bell System is growing to catch up with the nation's needs. You can also see why it is necessary for the telephone business to have reasonable earnings.

For the money for buildings like these does not come out of the money you pay for telephone service.

It must come from investors—hundreds of thousands of everyday men and women all over America who are willing to invest their savings in the telephone business.

Reasonable earnings are needed to attract additional investors' dollars. You have an interest in this because these dollars are used to provide you with more and better telephone service.

BELL TELEPHONE SYSTEM

Our Municipal Notebook

Is the Big City Obsolete?

AN impressive array of evidence to show that the large city is decadent is amassed by Professor Herbert B. Dorau of New York University in an article on "Urbanism and the Future of Land Values," published in *The Appraisal Journal* for January 1949. Some excerpts appear under the heading "The Big City Must Adjust Itself," on page 115 of this issue.

Dr. Dorau's arguments may seem irrefutable, but they do not take into account sufficiently, to our mind, the possibilities for internal improvement of urban physical facilities and amenities for family living, nor the development of mechanisms such as citizens' councils, whereby community responsibility can be promoted and neighborhood ties strengthened and fostered.

It may be, as Dr. Dorau maintains, that the big city is economically insolvent, even bankrupt. But, as he infers, this appears to be true only if the city is considered to be solely the area within existing political boundaries. Are there many who will argue that such boundaries are valid criteria for determining a big city's right to survive? It is time that the metropolitan region be recognized as constituting a new level of government, and that the possibilities for consolidation, annexation, or federation of the big city with adjoining areas be more thoroughly explored.

The existence of big cities through the ages, notwithstanding the decadence of some of them, testifies to the gregarious instincts of human beings, and to a persistent demand for the facilities for recreation and culture which require mass support.

The fiscal problems of our metropolitan areas stem in part from tax systems which recapture for the public benefit only a portion of the land values and ground rents produced by concentrations of population and by the services and expenditures of municipal and county governments. Changes should also be made in taxing jurisdictions so that those living beyond a city's present archaic political boundaries will pay their fair share for the use of the central city's facilities and for the opportunities it offers for the enrichment of their lives.

The pull of the big city and the counter-pull of the suburbs can be neutralized to some extent by well-planned projects which will substitute parks, playgrounds, and spacious housing developments for congested slums and blighted areas, thus bringing some of the country back into the city.

A multi-pronged approach is, of course, needed for any adequate solution of the problem. But certainly, big city adminstrators should recognize that two of their major tools are municipal public relations and the urban redevelopment concept: municipal public relations to tell the city's story, and problems, to mobilize citizen awareness and participation; and urban redevelopment to foster the investment of private funds in city rebuilding, and to integrate public and private improvement programs so that they will result in communities and neighborhoods spaciously planned and attractive for family living.

A Magazine's Civic Project Worthy of Emulation

NATIONWIDE attention and action in a key area of family living seems likely to be stimulated by the publication in the February issue of *McCall's Magazine* of "Yardville, U. S. A.," a six-page illustrated article dealing with an important aspect of community improvement.

This is the project, undertaken in cooperation with the Planning Commission of Philadelphia, which transformed fifteen dreary backyards in a working-class block into cheerful garden plots. Designed to form a harmonious whole, these yards have been planted with grass and flowers, contain terrace screens and pergolas, and provide recreational opportunities ranging from picnic facilities to skating areas for children. The residents themselves have named this renovated block "Yardville."

This has been a good business venture for the fifteen families, who all own their own homes. The creation of Yardville is said to have boosted property values 25%.

Far more important, however, have been the human and community values which Yardville has enhanced. The transformation of that area has improved home sites, raised health standards, given children play opportunities hitherto denied them, and shown one practical way of improving the appearance of a city.

McCall's prompted this project and carried it through on an experimental basis. What makes Yardville unique is that it is a pilot job for larger problems in community development of a comparable nature.

In converting the idea into reality, the magazine secured the consent of the city authorities, planned group meetings of the residents in the area to be transformed, obtained their agreement to the project, and followed up the whole administrative procedure to its successful conclusion.

Here *McCall's* confirmed a key factor in effective city planning. As municipal officials and city planners are learning more and more, all such planning, whether big or small, needs broad popular support—which is just what a magazine with mass circulation can help to enlist. The importance of reaching the schools in projects of this kind is also realized. It was the children of Luzerne Street who made Yardville possible.

This is not, of course, the first time a popular magazine has pioneered in some branch of civic activity. But it is an outstanding example of editorial aid to community improvement which we hope will be more generally emulated.

Local Economy Housing Meetings Scheduled

LOCAL meetings are being launched this month in cities of 10,000 population throughout the country in an effort to promote "economy housing" construction in 1949 for the lower-cost sale and rental-housing fields, including cooperative housing projects. The local meetings will bring together representatives of the various producing and financing interests and the local community to develop a united approach to the problem. The program is separate from any federal housing legislation which may result during the current congressional session.

Initial meetings will be held in so-called "key cities"—those which have Federal Housing Administration insuring offices—from about February 8 to 17. However, the local meetings in other municipalities are expected to be completed in March in time for the Spring building season. The FHA offices will assist in bringing together steering groups in each locality to plan and operate the meetings which it is hoped will result in continuing activity throughout the year.

Mayors in the key cities have been asked for their cooperation, and the participation of other appropriate municipal officials in the meetings has been requested. Subdivision planning, zon-

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ing, utilities, and building-code problems will have a high place on the local agendas.

In announcing the program in Washington, D. C., Raymond M. Foley, Administrator of the Housing and Home Finance Agency, said, "We must do more than talk and legislate about lower-cost sale and rental housing—we must build and finance much more of it. No one of us can do it alone, but cooperation between all of us can bring results. . . ."

Photos and plans of various economy housing dwellings are contained in a 25-page booklet on the "Economy Housing Program," which is available together with other information on the program from the Housing and Home Finance Agency, Washington, D. C.

Model Acts Drafted for State Legislatures

KEY proposals that may be considered by the 44 state legislatures meeting this year include legislation that allows cities to tax anything not taxed by the state, and a measure that would require all federal grants-in-aid for airport construction to be funneled through the state. These are two of the ten recommendations prepared by the drafting committee of the Council of State Governments and sent to the various state legislatures.

Precedence for the approach formulated in the "Municipal Tax Levying Enabling Act" exists in Pennsylvania where Act 481, enacted in 1947, is revolutionizing municipal finance. This act allowed all local units in the state, except second-class townships, the city and school district of Philadelphia, and the school district of Pittsburgh, to tax practically anything not subject to state tax or license fee. Admittedly an experiment in granting to local units a measure of home rule in financial matters, the Pennsylvania act has imperfections and requires some clarification and amendment, though it is likely that its basic principles will be continued. As of December, 700 local units in Pennsylvania had taken advantage of the Act's provisions by imposing a variety of new local taxes.

The bills proposed by the drafting committee of the Council of State Governments (1313 East 60th Street, Chicago, Ill.) are as follows:

1. *State Channelling of Federal Airport Funds Act.*—Requires that federal grants-in-aid to municipalities for airport construction shall be expended in a state only after receiving the approval of the station aviation agency.

2. *Out-of-State Airports Act.*—Authorizes a state and its political subdivision to construct, operate, and maintain an airport in an adjoining state.

3. *Model State Civil-Defense Act.*—Provides for establishment of the necessary state and local defense organizations for use in case of enemy attack, sabotage, or disaster.

4. *Fire-Assistance Enabling Act.*—Fosters the interchange of fire-fighting equipment among governmental units in time of emergency.

5. *Municipal Tax-Levying Enabling Act.*—Permits cities to tax anything not taxed by the state.

6. *Act to Establish a Small Business Commission.*—Creates a commission to study problems of small business and develop programs to strengthen it throughout the country.

7. *Water-Pollution Legislation.*—Designates a state water-pollution agency and vests it with authority to carry out all the functions necessary for a state to benefit from the federal water-pollution-control act. A second proposal would permit municipalities to take full advantage of the loan program contemplated by the federal act.

8. *Building Codes Adoption by Reference.*—Permits the adoption of model and scientific building codes by referring to their title rather than requiring that their text be published in full.

9. *Amendment to State Security Law.*—Eases certain restrictions in state laws which prohibit the circulation of a prospectus or any information regarding a security before it is registered.

10. *Amendment to State Safety-Responsibility Law.*—Exempts government vehicles from the operation of state safety-responsibility laws.

Don't Divert Those Revenues

IF you improve an existing service or supply a new one you incur certain costs. And it makes little difference to the man or firm being paid whether the revenue comes from the service benefited, or whether it is diverted from some department's revenue and thereby is hidden. In either case the money has to be paid, and the "hidden" feature frequently means only that the costs are delayed until some time when the funds so robbed are badly needed and a bond issue with its attendant expenses are required.

Fortunately many cities are learning that revenue-diverting is not a good policy. Grand Haven, Mich. (population 8,345, 1940 census), is an example. In this city the Board of Public Works was required to pay the indebtedness of the local hospital improvement undertaken before the war. This resulted in a debt-free hospital which is in itself commendable. But it robbed the fund that the utility needed to meet normal load growth.

In Grand Haven, the local newspaper editorialized as follows:

"There is always a danger that a municipality may regard its utility as a sort of Santa Claus, with the result that the utility itself is ruined by the strain of outside obligations thrust upon it."

Today Grand Haven's hospital needs enlarging. And at the same time, her utility needs enlarging to meet the demand for service that the people want. Fortunately, they realize that the reconstruction is an obligation, not of the Public Works Department, but of the entire community and the adjacent communities served.

Achieving Both Democracy and Efficiency In Municipal Government

SOME suggestions as to how municipal government can be "humanized," though remaining free of corrupt political control, can be found in the article, "Kansas City's People and Government Travel Together," by Hayes A. Richardson, Director of Welfare, Kansas City, Mo., which appears on page 88 of this issue. The article describes what is probably the outstanding example in the country of community or citizen council development and promotion by a municipal government.

In submitting the article to THE AMERICAN CITY, Mr. Richardson commented, as follow:

"I feel strongly that the only way a non-partisan city government can continue is to develop a mechanism so that the people feel they are part of it. Sometimes, efficiency eliminates the personal element. What we want is both democracy and efficiency, but to achieve this we need to develop community responsibility. We want people to feel that the city government is not separate from the rest of the community but is another institution established for service that citizens can evaluate continually and in which they can participate.

"Sometimes our Community Service Division has been referred to as the "Division of Community Responsibility." Of course, we have to be alert continually that no political or partisan group dominates the community councils as they grow and gain strength, and we always point out that everyone, regardless of his political affiliation, is a part of the community in which he lives. Such a non-partisan policy has been stringently followed in Kansas City, and the city government has rarely been accused of furthering its own purposes in the community organizations.

"I feel that this type of government must be started early and sold as an educational program. In the past people have been educated to the needs for a division of powers between the judicial, legislative, and administrative branches of government, but they have known too little of the actual work of a city government and of the community responsibility for its democratic and efficient functioning."

Horton

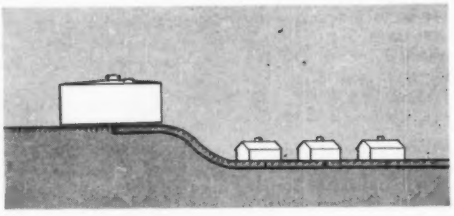
Welded-Steel Water Reservoir at Hot Springs

1,000,000-gallon ground-level tank provides gravity water pressure

Horton reservoirs offer an economical method of improving the water pressure in a city's distribution system under certain conditions. When a location on high ground is available, reservoirs give results comparable to those provided by large-capacity elevated tanks —more uniform water pressure in all parts of the distribution system, at all times of the day; less work for pumping equipment during peak demand periods; savings in pumping station power costs; and lower fire insurance premiums.

The 1,000,000-gal. Horton reservoir at Hot Springs, New Mexico, is located on a hill in the center of the city. From this location it is able to serve about three quarters of the city's area. The clean lines of the reservoir, and its simple maintenance requirements, are a result of the butt-welded steel construction used throughout.

The diagrammatic view at the right shows how a ground-level reservoir can be used to provide gravity water pressure where a natural elevation is available. Ask our nearest office to give you estimating figures on reservoirs and elevated tanks when contemplating improvements in your water system.



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Plants in BIRMINGHAM, CHICAGO, SALT LAKE CITY and GREENVILLE, PENNSYLVANIA

Water Supply and Treatment

Trained Fish Detect Tastes And Odors in Water

UNIVERSITY of Wisconsin investigators are using "trained fish" to detect objectionable tastes and odors in water caused by industrial pollutants.

These scientists proved that the bluntnose minnows have an exceptionally good sense of smell. Now they are putting the minnows to work.

The minnows detect phenols in extremely low concentrations. Phenols are dumped into natural waters as waste products from many types of industries, and when picked up by purification plants give an unpleasant taste and smell to the purified water used for drinking and other purposes.

Purification plants hitherto were unable to detect small amounts of phenols in water picked up for chlorination and use in city water supplies until it was too late—until consumers complained the water had a bad taste.

But the trained minnows will react in a minute to water containing phenol, much quicker than any known chemical methods.

WALKER'S DISCOVERY

The work stems from Theodore J. Walker's discovery in the same Wisconsin "Lake Laboratory" that he could train minnows to expect food whenever a certain odor was introduced into the aquarium. He also trained them to expect an electric shock when an "opposite" odor was introduced.

The minnows would rush into—or away from—the food trough whenever the odors were introduced, and they would do the same when phenols were filtered into the aquarium water.

When minnows smell the phenol they rush to the place where they have been trained to find food. As an additional check, the investigators have trained other minnows to fear an electric shock if they venture into the feeding trough while smelling phenol in the water.

This is the way it would work: the purification plant would take a sample of water periodically to dump into the aquarium. If one group of minnows rushes for the food trough, and the other group stays as far away as it can, then it would be almost certain that phenols were being taken into the purification plant.

Another advantage of the "minnow system" is that their noses are so sensitive they can detect phenol long before it reaches a concentration which can be tasted by humans.

If it can be made to work, it will probably be the best system yet for keeping a "chlorine taste" out of urban drinking water.

The work is still in the experimental state. It is being conducted by Warren Wisby, research assistant to Arthur Hasler, Professor of Zoology. William Lea and Gerard Rohlich, Professors of Sanitary Engineering, were co-advisors on the project.

The investigators felt that the work must still be considered experimental. However, all indications point to the fish as being a useful indicator of tastes and odors.

Cincinnati Starts New Pumping Station

AS PART of Cincinnati's five-year multi-million-dollar improvement program, the city has begun to award contracts that will eventually provide an additional 150 mgd of water in addition to the present 165 mgd.

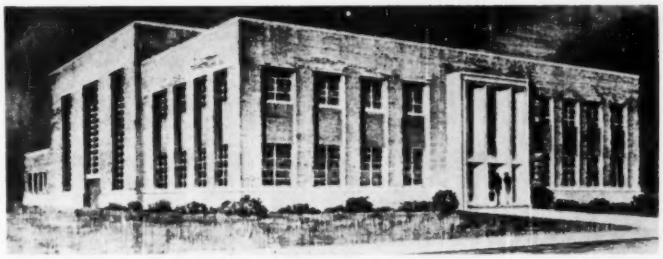
Six electric-driven centrifugal pumps will be housed in one of the new projects, the Tennyson Avenue Pumping Station. Two of these will be two-stage, powered by 3,000-hp General Electric motors, each capable of delivering 25 mgd to the Eastern Hills system, at about 200 pounds' pressure. A third two-stage pump, for Eastern Hills' variable-speed service, will be rated at 20 mgd, also driven by a G-E motor, rated at 2,500 hp, variable speed.

Seventy-five million gallons (at 75 pounds' pressure, to the Central Service System) will be supplied by three single-stage pumps, each powered by 1,250-hp G-E motors; General Electric will also supply the controls and accessory equipment for all the pumping units. The water for this station will be conveyed through a gravity conduit 8 feet in diameter and approximately 13,600 feet long, which will be tunneled through rock some 100 feet under the existing grade. A contract for the construction of this conduit, which is commonly called a tunnel, is in the process of being awarded at a cost of $3,209,650.

Recommends Authority System of Philadelphia Water

PHILADELPHIA'S water service should be divorced from the rest of the city government functions and be operated either under lease to a private company or as an independent "authority." This was the recommendation by Charles Haydock, consulting engineer, retained by the city, made to the committee of fifteen, which was appointed by the City Council. Mr. Haydock cited the operation of Philadelphia's city-owned gas works to a private operating company as an example of successful operation of the first type suggested above, and the Delaware River Joint Commission, which operates the bridges over the Delaware River, as a successful application of the second.

Under the present system, Mr. Haydock disclosed that the city has supplied insufficient funds to maintain the service adequately. He also found inadequate personnel and a large number of unmetered services.



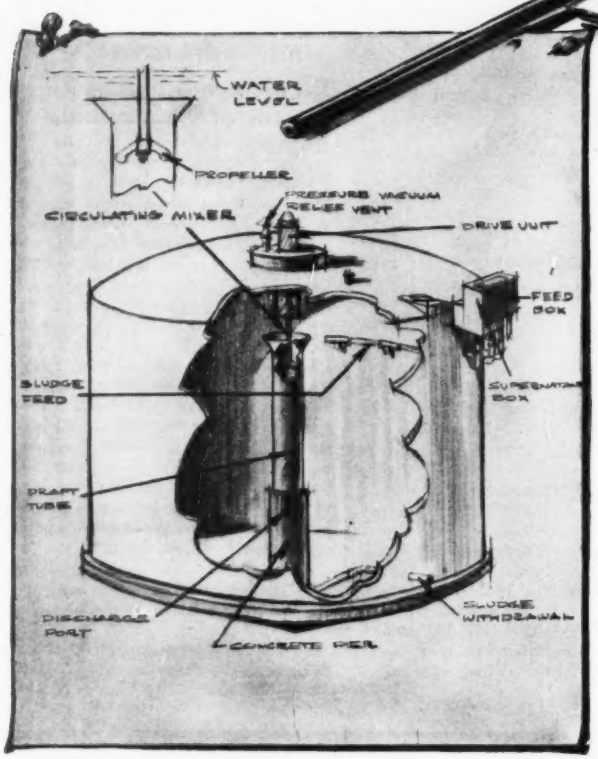
A drawing of the proposed Cincinnati pumping station.

What does intensive mixing mean in Digester operation?

Here's what Mr. Norman Wagner, Superintendent of the Stamford, Conn. Sewage Treatment Plant reports . . .

TESTS WERE RECENTLY CONDUCTED at the Stamford, Conn., Sewage Treatment Plant to measure the effect of intensive mixing on scum formation in Dorr Digesters. A 50' dia. Primary Dorr Digester with a fixed steel dome was equipped with a draft tube and high-capacity circulating mixer arranged so that conditions within the tank could be observed. As typified by Mr. Wagner's comment, results were definite and conclusive:

"During testing of Dorr Digester equipped with a high-capacity circulating mixer, we allowed scum to build up for a period of one week. The result was a scum layer a foot thick ...which disappeared after only 60 minutes of mixing."



✓ *Scum formation was positively eliminated All scum was submerged by mixing action.*

✓ *Action was* rapid . . . *60 minutes to eliminate 1 foot scum layer . . . an hour and a half to turn over entire tank contents.*

✓ *Continuous operation of the mixer was not required.*

✓ *Intermittent operation of the mixer maintained a homogenous sludge mixture.*

The draft tube and circulating mixer demonstrated at Stamford are now standard on Dorr Type M and MA Digesters. Several installations featuring this new development are now being made . . . one of which comprises 18 110' dia. units, each equipped with 3 mixers. A Dorr engineer will gladly furnish more detailed information on this new and proven development.

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DORR
RESEARCH ENGINEERING EQUIPMENT

Sewerage and Sewage Treatment

How to Check Sulfide Production

THE production of hydrogen sulfide, with its attendant damage to sewers and complication of the subsequent treatment process, can be checked by the use of small concentrations of chlorinated hydrocarbon emulsions such as Cloroben. This point was made by Professor Rolf Eliassen, of New York University, in a paper delivered before the Federation of Sewage Works Associations at its annual meeting held recently in Detroit. The paper disclosed research performed jointly by Professor Eliassen, A. N. Heller, and G. Kisch, of the staff of Lewis V. Carpenter Sanitary Engineering Research Laboratory of New York University.

CHLORINATED HYDROCARBONS USED

The production of hydrogen sulfide is particularly troublesome in sewerage systems with long trunk sewers, and very damaging in concrete ones. In the past few years, attention has been drawn to the results achieved in various cities where small dosages of chlorinated hydrocarbons have been used in sewage, reducing the sulfide concentration. Los Angeles has been a notable example.

The results of tests at New York University indicated that small concentrations of Cloroben, as low as 0.25 ppm, can markedly inhibit the production of hydrogen sulfide in reasonably fresh domestic sewage for periods as long as 72 hours. Little difference was noted in the effect of concentration between 0.50 and 10 ppm of Cloroben. The researchers concluded that low concentrations of this chemical were effective in the inhibition of the normal sewage microorganisms that tend to make sewage septic. However, it must be applied up-sewer while the sewage is still fairly fresh.

SUMMARY

In summarization, the research produced these conclusions:

Chlorinated hydrocarbons, such as orthodichlorobenzene, when properly emulsified, will inhibit the initial production of hydrogen sulfide in fresh sewage and keep the sewage in a relatively fresh state long enough to permit passage through a sewer system.

A 75% inhibition of sulfide production may be achieved for 18 hours at 37° C. (100° F.) in a normal domestic sewage when the chlorinated hydrocarbon emulsion known as Cloroben is present in a concentration of 1 ppm.

Concentrations higher than 1 ppm do not increase the inhibitory effect of the chemical to any appreciable extent in normal domestic sewage.

High concentrations of the sulfate-reducing organisms and septic conditions nullify the inhibitory effect of chlorinated hydrocarbons in sewage and specific synthetic media.

The mechanism of sulfide production by the reduction of mineral sulfates cannot be controlled by small dosages of chlorinated hydrocarbons and must be controlled by removal of the sewer slimes.

The mechanism of sulfide production by the decomposition of sulfur-containing organic compounds by normal sewage organisms such as those of the coliform group can be controlled by the addition of small dosages of chlorinated hydrocarbons at the upper ends of a sewer system.

Edw. J. Cleary New Head Of Ohio River Commission

EDWARD J. CLEARY, previously the executive editor of *Engineering News-Record*, has been appointed executive director and chief engineer of the Ohio River Valley Water Sanitation Commission.

Mr. Cleary brings to his new post a detailed knowledge of stream pollution—gained through work with Dr. Willem Rudolfs, international authority on stream pollution and chief of the New Jersey Water and Sewage Investigation Station, and through contact with the work of the Cincinnati Chamber of Commerce in its sponsorship of stream-pollution abatement legislation in the Ohio River Valley. Other phases of his career have included work as a consultant to the health and sanitation division of the Institute of Inter-American Affairs, which as a federal government agency engaged in promoting sanitary improvements in Latin American countries, and as Eastern vice-president of the American Public Works Association.

He has co-authored a book on construction practice, written numerous magazine articles, taught as a part-time lecturer at the New York University, and for several years served as a consulting editor on the staff of the *Scientific American* magazine.

FSWA Picks Boston for 22nd Annual Meeting

MEETING for the first time in New England, the Federation of Sewage Works Associations will stage its 22nd annual meeting in the Hotel Statler at Boston from October 17 to 20. Host to the Federation will be the New England Sewage Works Association, which will combine its 21st annual meeting with the national convention.

The Boston Conference will be three and a half days in duration, with one half-day session devoted to inspection trips of sewage and industrial waste-treatment facilities. The usual manufacturers' exhibit and appropriate social events will be featured.

Assembly of the technical program has already begun as a regular function of the FSWA Publications Committee, of which F. W. Gilcreas is chairman. The Local Arrangements Committee will be headed by E. Sherman Chase, of the consulting engineering firm of Metcalf and Eddy.

AMERICAN-LAFRANCE

NEW YORK CITY protects its high value area with 20 American LaFrance cab-ahead-of-engine pumpers, which are daily proving their superior maneuverability in the many streets congested with traffic. Specify cab-ahead-of-engine Pumpers, Quads and Aerials for best visibility, short turns, and fast acceleration.

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LAFRANCE FIRE ENGINE AND FOAMITE LIMITED
TORONTO 9, ONTARIO, CANADA

Street Cleaning and Refuse Disposal

The Beverly tractor and plow tackles a new drift in an outlying street.

Small Patrol Tractor Battles Snow Successfully

BEVERLY, in the Province of Alberta, Canada, a suburb of Edmonton, recently assigned its new Allis-Chalmers W-Speed Patrol to snow-removal work. Officials were gratified to discover that the grader performed this task as handily as it did the many tasks given it during the balance of the year.

According to Beverly officials, the 31.5-hp W-Speed Patrol was primarily purchased to maintain the town's 20 miles of roads and streets. Last summer a scarifier was built for the W-Speed Patrol, and the unit was able to participate in small highway construction jobs.

Last winter the 1,500 citizens of Beverly experienced 77.2 inches of snow, which gave the Allis-Chalmers W-Speed Patrol plenty of work to do. In one day 18 inches of snow fell, but Constable Tom Johnson and the W-Speed Patrol kept all roads open.

Toronto Increases Street-Cleaning Service

THE introduction of mechanical sweepers has provided Toronto, Canada, with an increased and improved street-cleaning service, H. D. Bradley, Commissioner, states in his annual report.

The city has eight Elgin and seven Austin-Western sweepers in service. They are providing greater cleanliness, particularly on those schedules where the machine precedes the street flushers. They also make it possible to release men for more important duties of picking litter on main business thoroughfares where parked vehicles prevent mechanical sweeping.

In Toronto, it costs $49.08 per season to clean 1,000 square yards of streets. Each year 11.9 cubic yards of

Atlanta Incinerator Shows Operating Profit

EVERY ton of refuse delivered to the Atlanta, Ga., incinerator is yielding a net return of 21 cents over operating costs, an analysis of the first nine months of operation in 1948 reveals. A detailed breakdown of the figures is as follows:

Production:	
Refuse burned (average, 390 tons per day)	105,385 tons
Steam produced	28,447,500 lbs.
Steam used in plant operation	2,457,810
Steam sold	25,989,690
Costs—operating—9 months	
Total revenue from sale of steam and metals	$119,152
Less: Operation labor, power, repairs and maintenance	95,453
Net Profit—9 months' operation	$ 22,699
Estimated net profit for full year's operation	30,265
Unit Costs (Ton):	
Total revenue received	$1.13
Less: Total operating costs	.92
Net Profit	$.21 per ton

The Atlanta incinerator uses the principle of continuous feed and continuous discharge of the residue. It has two rotating kilns laid at a slight incline from the horizontal. The refuse is fed first to a pair of drying hearths that will make the material burn more easily. The burning can be regulated to accommodate variations in refuse characteristics by changing the rate of rotation of the kilns. The incinerator is the first one known in the United States to use this design. It is being offered for general use by International Incinerators, Inc., Atlanta, Ga.

Heat from the kilns feeds a pair of boilers that produce steam. This steam is sold to the local private power company who uses it to supplement steam produced in its own power plant that heats downtown Atlanta.

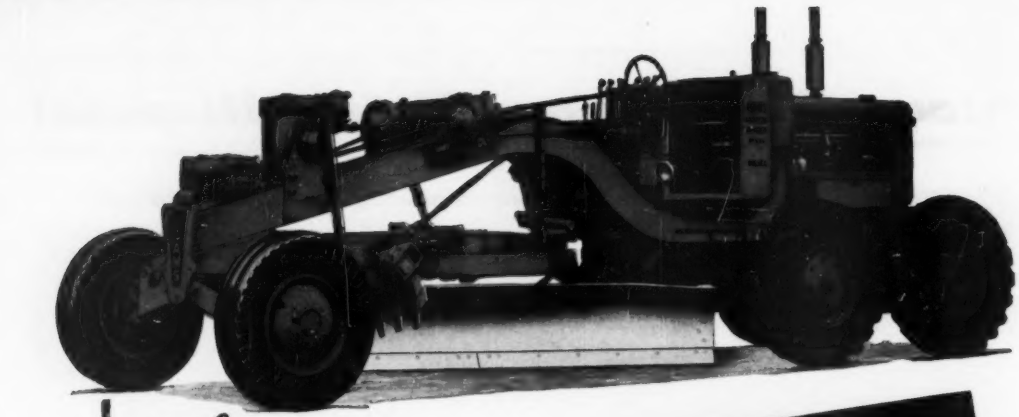
The incinerator also receives a substantial portion of revenue from metal salvage that has been carefully developed at this plant.

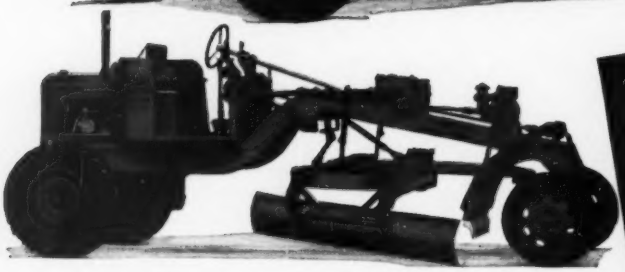
The plant operates on a 24-hour schedule. Its designed capacity is 333 tons per 24 hours. During the 9-month period it actually burned an average of 390 tons per day, or 17% above the rated capacity. Maximum days were approximately 450 tons or 35% above rated capacity.

The plant operation is notable for the accuracy of its records. Every load of refuse that enters the plant is weighed as is every load of incinerator residue that leaves.

Baltimore Welcomes New Fleet

Some outstanding features of the 14 new Federal trucks recently purchased by Baltimore, Md., for garbage and trash collection are pointed out by His Honor Mayor Thomas L. D'Alessandro, Jr. (right), to Markland Kelly, President of Baltimore's City Council. The units are Federal Model 29M's with 12-yard Car Wood Load-Packer bodies.





6 MODELS

RANGING FROM EXTRA HEAVY-DUTY NO. 610 WITH 100 H.P. DIESEL ENGINE TO LIGHT-DUTY NO. 201 WITH 31 H.P. GASOLINE ENGINE

ADAMS...world's most complete line of motor graders

ONLY Adams HAS ALL THESE FEATURES

Highway official or contractor—big operator or small—there's an Adams Motor Grader with the *right* power and *right* capacity to meet your individual needs exactly. From largest to smallest, all Adams Motor Graders are of the same proved design and capable of the same wide range of work, in proportion to their size and power. Ask your local Adams dealer for complete information.

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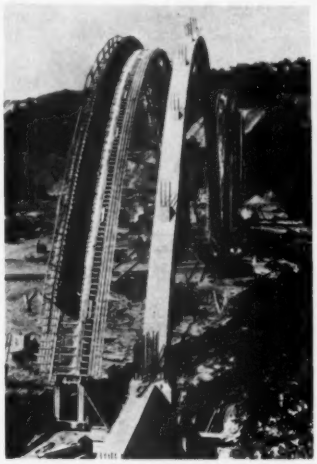
• Eight Overlapping Forward Speeds • High-Arch Front Axle for Clearance • Push-Button Starting from Cab • Positive Mechanical Controls • Wide Range of Blade Adjustments • Exceptional Blade Clearance in All Operating Positions • Balanced Weight Distribution • Easy Access for Fast Servicing • World-Wide Dealer Service

Street Construction & Maintenance



This shows the first rib of the first arch of the Commercial Avenue bridge completed. This steel centering and forms are being moved toward the piers for the second ribs. The movement required several hours, the ends being moved alternately a few inches at a time.

Pittsburgh Gets Triple-Arch Bridge

A GRACEFUL three-arch bridge is gradually taking form to become a part of Pittsburgh's Penn-Lincoln Parkway. The $1,800,000 structure will be known as the Commercial Avenue Bridge and will carry the four-lane parkway from Edgewood across Nine-Mile Run to the eastern approach of the tunnel to be build under a portion of the Squirrel Hill section of Pittsburgh (population 669,817, 1940 census).

To build the arches, the contractor used Blaw-Knox steel centering for the forms. The bridge is composed of three arches and each arch has four ribs of reinforced concrete. The steel centering is used to pour one rib and then is moved over for pouring the second rib, then the third, and the fourth. The same sequence is used on each of the three arches and they are all being built almost simultaneously. There are approximately 30 tons of steel in each set of forms.

The work is being constructed under the supervision of the Allegheny County Department of Public Works. Levi Bird Duff is Director. The contract is held by Dinardo, Inc., Pittsburgh.

A Small Community's Three-Year Program

LATE in 1945, the River Edge (N. J.) Commissioner of Roads at that time, Edwin C. Herrick, formulated a three-year road rehabilitation program which was subsequently endorsed by the Mayor and Council. This called for the rehabilitation of approximately one-third of the community's roads and streets during each of the three ensuing years.

Particular attention was directed toward rebuilding the shoulders with second-grade stone and taking care of any other minor repairs, then applying a sealing coat of tar along with a top dressing of quarter-inch stone to the entire surface. We used second-grade stone as a shoulder base because the dust in it provides better binding qualities with the tar dressing. The current year saw the completion of this program.

River Edge has, for the past several years, established a policy of repairing all existing sidewalks if the owner of the property pays for the material. The Borough provides the labor, and based on present costs, a 4 x 5-foot sidewalk section, new, costs the owner only $2.75.

This policy not only provides a better-looking community, minimizing walks that might be hazardous because of the uprooting of trees, but also makes it possible to keep the road crew at work during the month of October when there is a lull in its work.

KENNETH B. GEORGE
Commissioner of Roads
River Edge, N. J.

PHOTO COURTESY OF BELLUCHE PHOTO SERVICE, CAMBRIDGE, MASS.

The Cambridge paving crew, dressed in their good clothes, at the Civic Association reception given in their honor.

Taxpayers Fete Street Crews

WHEN a job is done right in Cambridge, Mass. (population 118,075, 1940 census) the public likes to let the man who did the work know about it.

Last year Cambridge's important and heavily-traveled Brattle Street needed paving. In order to get the work done promptly, City Manager John B. Atkinson made a personal appeal to the crew for a record-beating completion date. The crew, all members of the Public Works Department, responded in good spirit and completed the work faster than Manager Atkinson's fondest hope.

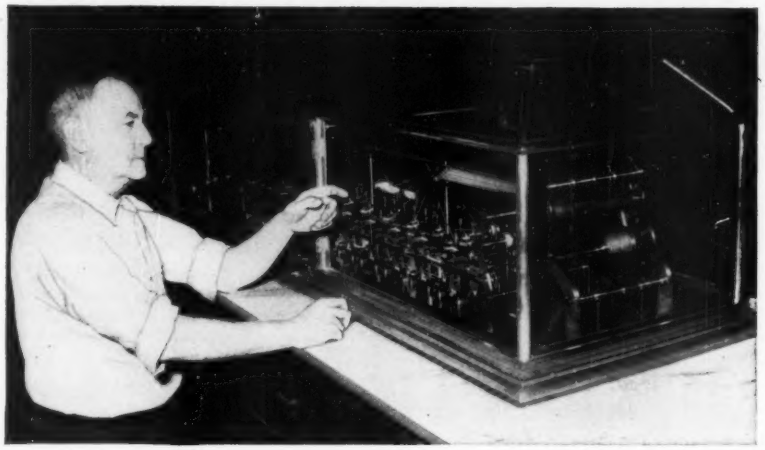
The Cambridge Civic Association recognized and appreciated this special effort of the crew. And to show its appreciation, organized a reception at which the crew was to be the guest of honor.

Those putting on the reception also expressed an interest in knowing and meeting the personnel directly connected with and responsible for the work.

At the end of the reception a question-and-answer period followed, the crew answering the questions relating to its work.

WHY CITIES PREFER GAMEWELL

YEARS OF TROUBLE-FREE PERFORMANCE



Fireman John Hurley, on duty at the central fire station, Lowell, Massachusetts, inspects the 77 year old automatic fire alarm repeater. The repeater relays alarms from the city's 188 fire alarm boxes to all fire stations. This is but one instance of many, typifying the high quality of GAMEWELL equipment.

Lowell Fire Department Still Uses 77-Year-Old Repeater

Relays Alarms to 11 Firehouses in City Registered on 10 Circuits

LOWELL—Almost faster than the eye can see, the glass-encased apparatus leaps into action, a whirring of blades, shifting of weights and adjusting of contacts, accompanying the opening and closing of circuits and the city's fire alarm system swings into operation.

The action, perfectly synchronized, takes place in the fire department's 77-year-old repeater, on the top floor of the Central fire station on Palmer street. The scene takes place every time an alarm is sounded from any one of the 188 boxes throughout the 14 square miles of the city.

It is through this repeater system that an alarm, sounded on any one box, is relayed over the 10 fire department circuits into the 11 firehouses in which the city's 16 fire companies are stationed.

Even watching the repeater or the tapes representing the 10 circuits and on which the strokes of the bell are punched, it is impossible to discern any slowing down of the process.

FROM THE LOWELL SUN — NOV. 18, 1948

For nearly a century GAMEWELL Fire Alarm Boxes have been the recognized standard of excellence for fire signaling.

We invite your inquiry.

THE GAMEWELL COMPANY

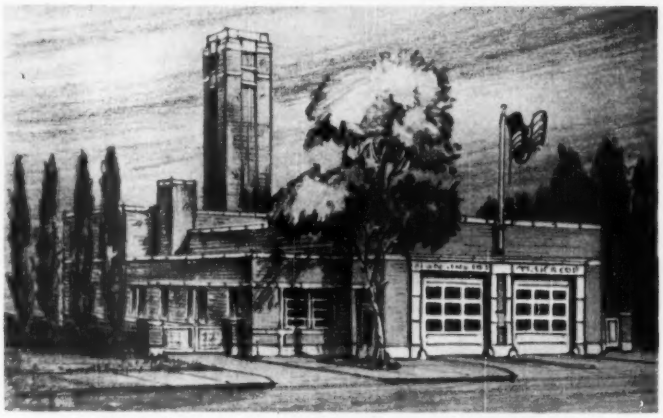
NEWTON UPPER FALLS 64, MASSACHUSETTS

IN CANADA: NORTHERN ELECTRIC COMPANY, LTD., MONTREAL

Public Safety

Forerunners of One-Story Fire and Police Stations

By NORMAN SHIGON



A sketch of the recently completed fire station in Philadelphia.

PHILADELPHIA is building one- and two-story fire stations in place of the old-style three-story structures which were necessary before the three-platoon system permitted the men to sleep at home. The Mayor's Committee of Fifteen pointed out that "Large district stations with dormitory facilities are not needed. The type of police (and also of fire) station needed in 1948 is a small one-story building like one recently built in the 9th police district of St. Louis.

Philadelphia's Mayor Bernard Samuel has announced that the Committee of Fifteen's suggestions probably will be followed in the construction of new police or fire stations or the replacement of the city's present 89 fire stations and 35 police stations. Two of the fire stations have just been completed in the 35th and 50th wards, where a large number of housing projects are under construction.

The station in the 35th Ward, of one story and costing $165,000, was designed by Joseph A. Roletter, Director of the Philadelphia Department of Architecture. The station serving the 50th Ward, costing $152,000, was designed by Paul Henon. This station is also one story high, except for a small section in the rear which arises two stories in order to provide toilet and locker facilities for the firemen.

A brief resume of the features of the station in the 50th Ward will highlight sufficiently the desirability of this type of building over the conventional three-story type. Since sleeping space is eliminated, savings will arise in the costs of heating, lighting, general upkeep, and housekeeping.

SAVINGS IN MAINTENANCE COST

The apparatus room walls are all of mat-glazed terra cotta. All other walls and partitions are of glazed structural tile. This will cut painting and repair bills. Painting maintenance is further obviated by having all of the exterior window frames of drawn aluminum. The apparatus room, accommodating at least three pieces of apparatus, is equipped with the latest type of fast, electrically operated, overhead doors, manufactured by the Atlas Overhead Door Co. The gasoline pump is located in front of the apparatus room below the overhead doors. All floors subject to hard use are constructed of cement or hard clay tile. All walls are completely insulated with 4 inches of rock wool. This insulation was called for so as to effect a saving in fuel, make the building easier to heat, and to maintain an even temperature.

The first floor of the building has a room for the officers, a recreation room for the men, a combination dining room and kitchen, toilet and washing facilities. A toilet and wash room are also provided for the use of the general public.

Set back twenty feet from the building line in keeping with the surrounding neighborhood set-backs, the exterior of the station is faced with a high-grade, hard, light-pressed brick trimmed with Indiana Limestone. The base of the front of the station is of a selected fine quality granite.

This building and the other fire station are ornaments and assets to their neighborhoods. They may help start a national trend toward streamlining municipal police and fire stations.

Traffic Congestion Not New

NOT only are the first hundred years the hardest but, as far as traffic congestion is concerned, that's only the beginning, it was revealed at the opening technical session of the 95-year-old American Society of Civil Engineers Fall Meeting at Boston on October 13, 1948. To motorists inclined to grouse about parking restrictions, Charles A. Blessing, Chief City Planner, Chicago Plan Commission, offered such comfort as is to be found in the knowledge that as long ago as 128 years their forbears were inconvenienced by similar regulations. "So great was the wagon traffic in downtown Boston as early as 1820, that after a certain hour in the evening wagons were prohibited from entering over the neck of land which at that time tied Boston to the mainland." At the first technical meeting, held on January 5, 1853, the very first discussion of a professional subject was on relieving traffic congestion on Broadway in New York City.

Merced, Calif., Wants Fire Chief

THE City of Merced, Calif., invites applications for the position of fire chief. Salary open. Experience in fire fighting and administration required. Applicants must be United States citizens and in good health. Applications should be complete and in applicant's own handwriting, stating his physical characteristics, educational background, and general experience. Mail application to the City Manager, City Hall, Merced, Calif.

Howard Allen, *Inspector*

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Do you know the inside story behind your Ryerson sales representative? It's a story of years spent within a Ryerson plant. A story of the steel inspection department, the operating department, the service department and others —inside jobs through which a Ryerson salesman builds up the experience he applies—outside—to your steel problems.

That's why you can be sure you're dealing with an experienced steel man when a Ryerson representative calls. He offers a complete steel service—carbon, alloy and stainless, sheared, sawed or slit, burned or bent, punched or threaded. And he can put to best use all the smoothly coordinated functions that make up this steel service, because he knows about them first hand.

Of course, he can't work miracles. Right now there simply isn't enough steel to meet current demand. But you can depend on your Ryerson salesman to cooperate closely and intelligently with you. From long experience he can often suggest practical alternates when the steel you need is not available. So, to make the most of available steel, talk it over with your Ryerson representative or phone our nearest plant.

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RYERSON STEEL

Airports and Aviation

Do Plane Vibrations Hurt Airport Runways?

Eight per cent more deflection in pavement runways occurs when the plane stands idle and the motors are not operating, according to army tests.

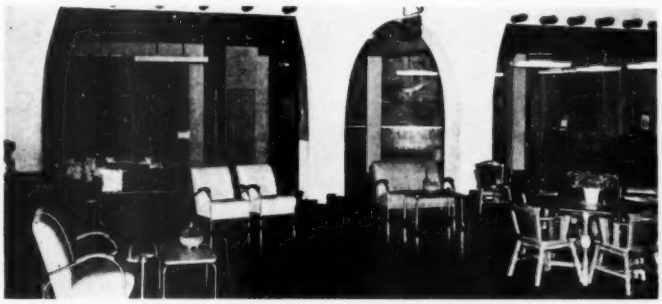
THE American Road Builders' Association reports that the answer is "no." W. R. Macatee, Manager of the Airport Division, reports army tests that support his assertion.

The Army's Corps of Engineers made exhaustive studies to determine the extent to which runways are affected by airplanes when their "props" are turning over while taxiing or standing, contrasted to planes with their motors turned off. The investigators came up with the following result of their studies.

". . . pavement deflections produced by a B-29 plane empty, loaded, and *standing* with motors running were, on an average, about 92% of those (deflections) by planes standing with motors dead."

With that finding established, paving engineers suspected there might be a somewhat similar effect on runways when airplanes taxi over paved surfaces. Logically enough, aircraft, while taxiing, transmitted their loads onto runways in a manner that was found to be even less severe. In the parlance of experts who studied the subject, they found that:

". . . pavement deflections produced by a B-29 plane empty and loaded and *taxiing* were, on an average, about 78% of those with the plane standing with motors dead."



A corner of El Paso's Sky Terrace, where passengers relax between flights.

El Paso's Growing Air Traffic

EL PASO'S growing airport service has become one of the major responsibilities of this city. During the first six months of last year, 88,286 aircraft of all types used this field, making it one of the top 10 in the nation. Landings and take-offs of commercial airlines averaged about 1,000 per month. Some 1,400,000 people passed through the lobby of the building during the past year. Gasoline sales for the first six months totaled 317,000 gallons.

The airport has four runways 150 feet wide and 7,000 feet long, able to accommodate planes up to 300,000 pounds.

During the past year, new additions to the administration building have been put into use; new hangars have been erected for the use of private planes, gasoline dispensing islands built, a new accounting system installed, and past-due obligations reduced to almost nothing.

The airport is managed by Don E. Self, who reports to a non-political Airport Board of five civic-minded citizens who, in turn, report to Jules R. Carlin, Councilman.

Almost a million and a half people have come and gone through the lobby of the administration building during the past year.

Fort Smith Builds New, Modern Airport

THE aviation needs of Fort Smith, Ark. (population 31,429, 1940 census), had outgrown the two 3,500-foot runways that had been serving our city since 1935. They had outgrown them so far that two years ago the people, by a solid majority, voted that $750,000 be spent to give our city modern airport facilities. With this matched by a similar grant from the Civil Aeronautics Administration, it meant that Fort Smith would have a $1,500,000 airport.

The present construction adds to the old field by supplying one 4,620-foot runway and an additional 4,200-foot runway, both 150 feet wide. Paralleling them are two taxi-strips, each 50 feet wide and approximately 5,300 feet long.

The runways are constructed of concrete 8 inches thick. Turn-around areas are being built of concrete 15 inches thick. The old runways were constructed of 8-inch water-bound macadam with a Topeka-type asphalt for wearing surface. Today heavy airline traffic has made this obsolete. It still serves adequately for the lighter personal aircraft.

JAY MEDLEN
Public Works Commissioner
Fort Smith, Ark.

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Greater Engine Efficiency

Use the oil that keeps engines clean Texaco Ursa Oil X**

Lower Operating Costs

YOU'LL get more power, more efficiency, out of your heavy-duty gasoline and Diesel engines . . . and reduce your maintenance and operating costs at the same time . . . when you lubricate with *Texaco Ursa Oil X***.

Here's an oil that *keeps engines clean! Texaco Ursa Oil X*** is fully detergent, dispersive and resistant to oxidation. It keeps rings free and valves active . . . protects parts against wear and bearings against corrosion. *Texaco Ursa Oil X*** keeps your engines on the job longer between overhauls . . . keeps fuel costs low.

For chassis parts of trucks, tractors, shovels and other equipment, lubricate with *Texaco Marfak*. It lasts longer, protects parts better. In wheel bearings, use *Texaco Marfak Heavy Duty* to seal out dirt and moisture, give full protection. Lubricate crawler track mechanisms with effective *Texaco Track Roll Lubricant*.

Texaco has lubricants for all your needs. Use the Texaco Simplified Lubrication Plan. It assures both economy and improved performance. Just call the nearest of the more than 2300 Texaco Wholesale Distributing Plants in the 48 States, or write The Texas Company, 135 East 42nd Street, New York 17, N. Y.

TEXACO

TEXACO Lubricants and Fuels

FOR ALL CONTRACTORS' EQUIPMENT

Tune in . . . TEXACO STAR THEATRE presents MILTON BERLE every Wednesday night. METROPOLITAN OPERA broadcasts every Saturday afternoon.

Check Your Wants and Mail Coupon

Please check over the list of interesting free catalogs on this and following pages. To obtain the literature you want, write direct to the manufacturers, or circle the identifying numbers on this coupon and mail it to THE AMERICAN CITY MAGAZINE, 470 Fourth Ave., New York 16. We will see that catalogs are sent to you without expense or obligation.

2/49

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Name ..... Position .....

Address .....

Read and Record Meters Economically

453 The Systems Division of Remington Rand, 315 Fourth Ave., New York 10, N. Y., has published a booklet giving such important time- and money-saving procedures in reading meters as how to choose the meter-reading form best for your municipality's purposes, how to enter readings for economy of computation and ease of reference, what kind of binder should be chosen, how to speed bill preparation, and how to choose various types of office equipment as an aid in completing the process of meter reading and billing.

Valves and Hydrants

454 The M & H Valve and Fittings Co., Anniston, Ala., is distributing Catalog No. 34, which describes its pipeline accessories, valves, and hydrants. All products are made according to standard specifications.

Up-to-Date Fire Apparatus

455 Mack triple-combination pumpers, 500 to 1,500 gallons; squad wagons; city service and quadruple combination ladder trucks are described in illu-trated literature available from the Mack Mfg. Corp., Fire Apparatus Div., Long Island City 1, N. Y.

Trailer With 5- to 7-Ton Capacity

456 The Martin trailer, Model 22, has an extremely low platform height to accommodate rollers, Track tractors, and bulk material weighing as much as 5 to 7 tons. Write for detailed specifications and prices to the Martin Machine Co., Kewanee, Ill.

Put Out the Fire Yet Save the Merchandise

457 Damage from smoke and water can be prevented with Shuredry Green-Bak Salvage covers, decreasing fire loss to merchandise, furniture, and fixtures. Pressure-impregnated with Fulton dry treatment, the covers do not stiffen in cold weather nor become tacky in heat. Write for information to the Fulton Bag & Cotton Mills, P. O. Box 1726, Atlanta, Ga.

Controls and Panels

458 Bulletin No. 631 will be sent to you by the Ideal Electric & Mfg. Co., Mansfield, Ohio, describing the company's line of generator control and distribution panels in either self-supporting or wall-supported styles.

6 Work-Speeding Features To This Bulldozer

459 Direct lift; direct down pressure; engine mounting, 5-position adjustable blade tilt; interchangeable bulldozer or grade-builder blades; blade pitch adjustment, and smooth hydraulic control make the Baker hydraulic bulldozer outstanding. This unit has the torque converter that lets the load and grade, not the operator's judgment, govern the speed. Write for information to the Baker Mfg. Co., Springfield, Ill.

Is Your Reservoir Leaking?

460 The Pressure Concrete Co., 193 Emmet St., Newark, N. J., will send you a catalog describing how reservoirs can be repaired not only to prevent wasteful loss of water, but how, in the process, the capacity can actually be increased.

Breaks Concrete, Tamps Backfill

461 The Mighty Midget, operating on a 105-cfm compressor, breaks asphalt and concrete, and tamps backfill—giving a high density. All controls are within the operator's reach. Write the R. P. B. Corp., 2751 E. 11th St., Los Angeles, Calif.

Repairing and Sealing Compounds

462 Rubberized Oil Plastics, Inc., 82 W. Washington St., Chicago 2, Ill., manufactures Zero-Lastic oil-resisting compound, oil-resisting joint material for airports, vertical and sloping joint fillers, and hair-line-crack fillers. These compounds, easy to use, provide a quick and economical method of repairing.

Steel in Stock

463 Joseph T. Ryerson & Son, Inc., 2558 West 16th St., Chicago, Ill., has in stock carbon, alloy, or stainless steel to meet maintenance and repair requirements—on 24-hour delivery in emergencies. Write for information about exactly what can be supplied.

Repair a Broken Main In 5 to 15 Minutes

464 The Skinner-Seal split coupling clamp makes a lasting repair in 5 to 15 minutes, with one man doing the installation. The gasket is completely sealed and protected, and each clamp tests to 800 pounds line pressure. Write the M. B. Skinner Co., South Bend 21, Ind.

Small Diesels Do Big Job

465 In one plant a 67-hp gas-diesel and two 90-hp gas engines, all from the Cooper-Bessemer Corp., Mount Vernon, Ohio, pump close to 12 million gallons per day. Write for data on how these engines can give your plant efficient power at low costs.

Catch Basin Cleaning Machines

466 The Silent Hoist & Crane Co., Brooklyn 20, N. Y., will send you its bulletin No. 67, describing the Krane Kar mobile swing boom crane for cleaning sewer catch basins. One operator lowers the bucket into the manhole, raises the filled bucket, tops and swings the boom, and dumps the collected matter into the truck. There is also one-man operation on the Silent Hoist power swing boom crane with deep-lip orange-peel bucket.

10-Ton Roller Weighs 230 Pounds

467 The Wayer Impactor super-tamps, finishes, and curves 60 to 80 square feet of pavement patching per minute and leaves the paving ready for immediate traffic. Working flush to rails, curbs, and manholes, it impacts hot or cold material in winter or summer without water. A density equal to a 10-ton roller is achieved by means of a heated plate which strikes 700-pound blows at the rate of 7,000 per minute. Write for Bulletin 25-8 to the Wayer Impactor Sales Co., 12 N. Third St., Columbus 15, Ohio.

Moves Snow 18 Feet From the Path

468 The Ariens Tiller snow plow cuts a swath of 24 inches and moves the snow as much as 18 feet from the path—ideal for snow-drift removal. The discharge spout is about 55 inches and is reversible so that snow may be blown to the right or left. Write the Ariens Co., Brillion, Wis.

Reduce Election Costs With Automatic Machines

469 Automatic voting machines reduce the election costs in three ways: by making possible a reduction of the number of voting places, by reducing the number of paper ballots from one to a voter to one set of cardboard ballot labels to a machine, and by reducing the expense of recounts. Write for information to the Automatic Voting Machine Corp., Jamestown 55, N. Y.

(Continued on Page 23)

HD-5 TRACTOR

HD-5 TRACTOR with Tracto-Shovel and its interchangeable attachments—1 cu. yd. standard bucket, ¼ cu. yd. narrow bucket, 2 cu. yd. snow loader bucket, 1 cu. yd. rock bucket, bucket teeth, heavy-duty bulldozer blades, V-type snowplow.

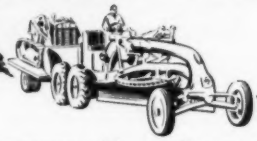
BD-3 MOTOR GRADER

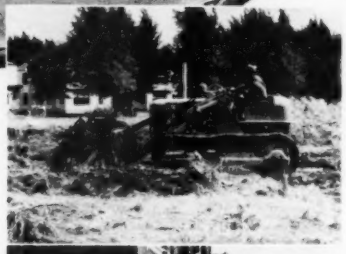
BD-3 MOTOR GRADER, 78 brake h.p., 19,042 lbs. . . . or any other A-C diesel-powered model — AD-4, 104 brake h.p., 22,140 lbs.; AD-3, 78 brake h.p., 21,835 lbs.; BD-2, 50.5 brake h.p., 17,772 lbs.

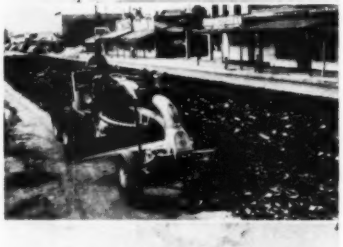
Wrap up

YOUR YEAR 'ROUND PROBLEMS *with this*

EQUIPMENT PACKAGE







Reduce your equipment investment with this equipment package. No need to have a number of specialized machines for various jobs. Any maintenance work . . . and much of your construction . . . material handling . . . snow removal and loading are quickly, efficiently done with this versatile combination—AT BIG SAVINGS. Let your Allis-Chalmers dealer tell you all about this LOW COST, BUDGET STRETCHING PLAN . . . NOW!

SOME OF THE JOBS YOU CAN DO WITH JUST THESE TWO MACHINES

- Clean and shape-up ditches
- Cut and smooth backslopes
- Handle regular maintenance
- Widen and reshape roads
- Make driveways and bridge approaches
- Build berms
- Scarify roads and streets
- Backfill pipe, culverts, bridges
- Take out cuts
- Remove and load sod
- Load surplus dirt from shoulders and ditches
- Remove and load topsoil
- Make fills
- Handle bulldozing
- Make channel changes
- Plow, move and load snow from roads and streets, alleys, parking lots, cemeteries, institutions
- Skid trees
- Load rocks and stumps
- Dig and load dirt
- Load sand, gravel and other material
- Mix black-top
- Do crane work
- Handle all types of hauling or pulling
- Straighten out curves
- Open and rebuild alleys and streets
- Build parking lots
- Cut away embankments obstructing sight

ALLIS-CHALMERS

TRACTOR DIVISION • MILWAUKEE 1, U. S. A.

Your Catalog Supply Service

Please Use Coupon on Page 21

Traffic Lights Solve Traffic Problems

470 Whether it is a simple span-wire signal or a complex four-way three-section affair that is required, the Crouse-Hinds Co., Syracuse 1, N. Y., can help you make the streets of your municipality safe for motorists and pedestrians. Write for Catalog 226, illustrating signals, beacons, flashers, and controllers.

Secure This Gate Valve, Hydrant Catalog

471 The Darling fully-revolving, double-disc, parallel-seat gate valve provides easy closing, automatic adjustment for valve body distortion, elimination of disc-to-seat friction and galling, and uniform wear distribution. Write for the 300-page Catalog No. 17M, to the Darling Valve & Mfg. Co., Williamsport 10, Pa.

No Decrease In Capacity With This Water-Line Pipe

472 Lock Joint reinforced concrete pressure pipe permanently maintains its initial high-carrying capacity, and provides a dependable means of transporting water from its source to its destination. Write for data to the Lock Joint Pipe Co., P. O. Box 269, East Orange, N. J.

No Oil to Freeze In These Parking Meters

473 One of the big advantages of the Rhodemaster parking meter is trouble-free winter operation, since the meter requires no oil for lubrication. Violations are easy to spot, too, since the face of the meter is all red when it is overtime. Write M. H. Rhodes, Inc., 30 Bartholomew Ave., Hartford 6, Conn.

Clean Catch Basins Quickly

474 Although the Netco catch-basin cleaner, which averages from 20 to 30 catch basins per day, has a hoisting capacity up to 1,500 pounds, it can operate through an opening as small as 16 inches. The bucket easily removes sticks, stones, bottles, wire, and other such debris. Write for complete details to the Netco Div., Clark-Wilcox Co., 118 Western Ave., Boston 34, Mass.

One-Man Installation Of This Compound Water Meter

475 The Pittsburgh Empire 3-inch compound meter is installed by one technician. There is full accessibility to all parts for ease of maintenance, and a single register to speed meter reading and eliminate errors. The meter can be dismantled or assembled while in the line, and runs smoothly without pulsations. Write the Pittsburgh Equitable Meter Div., Rockwell Mfg. Co., Pittsburgh 8, Pa.

Plan House Numbering

476 House numbering can be planned to indicate the exact block on which the building is located, facilitating mail delivery and trouble-shooting by municipal crews. Write for a bulletin describing this method to the Premax Products Division of Chisholm-Ryder Co., Inc., 4946 Highland Ave., Niagara Falls, N. Y.

Power Lawn Mowers For Large or Small Lawns

477 The Eclipse Lawn Mower Co., 1802 Railroad St., Prophetstown, Ill., makes a line of power lawn mowers that ranges from the Rocket 20" for lawns of schools and public buildings to the Speedway 32", with sulky, for mowing large areas at the rate of 100 yards per 30 seconds.

Control Pumping Rate By Varying Pump Speed

478 The E-M adjustable-speed magnetic drive automatically varies the speed of centrifugal pumps and thus controls the pumping rate. Applicable to horizontal- or vertical-shaft centrifugal pumps with or without gear reduction, the mechanism has a large number of speed steps, is constructed with only two drive elements, requires little maintenance (since there is no mechanical connection or fluid between the rotating elements), and is self-cooling. Write the Electric Machinery Mfg. Co., Minneapolis 13, Minn.

Combination Drives For Water, Sewage Systems

479 The Johnson Gear & Mfg. Co., Berkeley 2, Calif., can supply you with its combination drives, making possible the supply of power for continuous water supply, flood damage reserve power, and sewage systems through standby diesel and gasoline engines. Hundreds of municipalities depend on this drive for protection against electric power failure. Catalog on request.

Floodlights for Airports, Recreation Centers

480 The Revere Electric Mfg. Co., 6015 Broadway, Chicago 40, Ill., will send you a catalog illustrating its floodlights ranging from 150 to 5,000 watts for airports, playgrounds, parks, swimming pools, and athletic fields. The booklet contains layouts for these areas and serves as a practical blueprint for planning their illumination.

Protect Property With Fencing

481 The Pittsburgh Steel Co., 3266 Grant Bldg., Pittsburgh 30, Pa., will send you data about its Pittsburgh Chain-Link fence, for protecting all types of municipal properties: buildings, reservoirs, plants, park areas.

Power Sewer Cleaning Units With Ten Exclusive Features

482 The Turco Maxi-Power sewer-cleaning unit No. 2, water- or air-cooled, has a tubular frame, forged enclosed gearing, one clutch, flange ball-bearings, designed level wind, 3-speed transmission, high-speed chain drive, no-clutch free spooling, selected speeds, and bucket-swing positioner. Write the Turbine Sewer Machine Co., 5210 W. State St., Milwaukee, Wis.

Electric Flare Warns of Hazards

483 The Big Beam 400-F electric flare with red Fresnel lens gives either a steady or a flashing flare. The interchangeable clear Fresnel lens converts it to a regular lantern, and the unit, which is as easily serviced as a flashlight, can be set or hung in any position. Even if it is knocked over, the 400-F continues to function to warn motorists of hazards and barricades. Write the U-C Lite Mfg. Co., 1056 West Hubbard St., Chicago 22, Ill.

Get a Better Sidewalk With This Repair Surfacing

484 If you repair your sidewalks with Plastic Rock, you provide a surface that is easier to walk on, that resists weather damage, and that gives a slip-proof surface. The substance can be applied without traffic interruption and ordinarily dries in 24 hours. The Plastic Rock is packed in sealed barrels; and with the addition of water is ready for use. Write United Laboratories, Inc., 16814 Euclid Ave., Cleveland 12, Ohio.

Measure Color and Turbidity In Water

485 The Lumetron, a photoelectric colormeter, Mod. 450, for water analysis in Nessler tubes, is designed primarily to measure color and turbidity in water, and the instrument may be used for all colorometric tests hitherto carried out by visual comparison through columns of liquid in upright tubes. No color standards are required and the readings on the meter scale are independent of light conditions and of individual color judgment—various operators will get exactly the same results. Write for Bulletin No. 450 to the Photovolt Corp., 95 Madison Ave., New York 16, N. Y.

Five Advantages to This Clamp

486 The Stauffer pipe-repair clamp for high-pressure lines can be installed quickly and easily, even under water; it outlasts the pipe, is highly non-corrosive, and is flexible and lightweight. The No. 100-C comes in widths of 3, 6, 9, and 12 inches for pipes from ½ to 24 inches. Write for data about this and other lines to the Stauffer Mfg. Co., 8424 Otis St., South Gate, Calif.

Swimming Pool Equipment

487 Among the products described in Bulletin WP-1099-B56 from the Worthington Pump and Machinery Corp., Harrison, N. J., are a recirculation system, strainers, heaters, filter design, coagulant feeders, underdrain system, rate-of-flow indicators and controllers, remote control for hand operation, automatic-operation unit, and recirculating pumps.

Playground Equipment

488 Descriptions and complete prices are given on Burke-Built playground equipment in a new circular. It covers swing sets, slides, park benches, see-saws, merry-go-rounds, bicycle racks, basketball backstops, and flagstaffs. The type of metal fittings used are explained. Write The J. E. Burke Co., Fond du Lac, Wis.

No Water in Your Eye From These Fountains

489 One of the design features of the water fountains manufactured by the Halsey W. Taylor Co., Warren, Ohio, is the automatic stream control that maintains a constant height in the drinking stream even though the line pressure may vary 50 pounds—the stream is never too high, never too low. The 2-stream projector forms a drinking mound that makes it difficult to drink from any other point, so that fingers or lips do not readily come in contact with the water source. The fountains are available in various colors.

Light Up Traffic Signs

490 Scotchlite consists of millions of microscopic spheres permanently bonded to a flexible backing in a uniform layer. When light strikes this surface, as from automobile headlights, the light is caught by the "lenses" and reflected back to the light source—a motorist can really see those all-important traffic legends. Write for literature to the Minnesota Mining & Mfg. Co., St. Paul 6, Minn.

Numbering Stamps

491 For literature describing equipment for stamping numerals and letters on metal tags, keys, wood or plastic, write the Numberall Stamp and Tool Company, Huguenot Park, Staten Island 12, N. Y. The method of stamping is by the tap of a hammer or by Numberall stamping machines. In addition to single-character stamps, there is a rotary stamp which takes the place of 12 individual hand stamps.

(Continued on Page 25)

THIS IS THE *Mullinaider*

TRADE MARK

ELECTRIC GARBAGE DISPOSER

ONE OF THE OLDEST, MOST THOROUGHLY TESTED DESIGNS AVAILABLE TODAY

AMONG the many garbage disposers now on the market, this one has given outstanding trouble-free service.

Tested for many years and backed by the makers of famous Youngstown Kitchens, the Mullinaider discharges the ideal solid-fluid mixture into the sewage system.

Other important design features help establish Mullinaider as the leader: for example, the swirl-cleansing action that keeps it always clean, the reversible-direction feature that minimizes service calls, and the rugged construction throughout for long life.

For specifications, test data or inspection, ask any Youngstown Kitchen dealer or write Mullins Manufacturing Corporation, Warren, Ohio.

Mullinaider

TRADE MARK

ELECTRIC GARBAGE DISPOSER

NEW HEALTH STANDARDS

Through the elimination of garbage, the sanitation cycle in the home is completed by the Mullinaider electric garbage disposer.

A garbageless home is a healthier home. A garbageless community is a healthier community.

Thus, the installation of a Mullinaider makes a distinct contribution to the overall health of the community.

Youngstown Kitchens

BY MULLINS

World's Largest Makers of Steel Kitchens

Your Catalog Supply Service

Please Use Coupon on Page 21

No Painting Of Trash Receptacle

492 The Smithson aluminum trash receptacle does not corrode and requires no painting. Designed so that it will smother small fires that may start within the container, the receptacle proves a definite safety as well as health factor. Write for information to the Smithson Co., 219 So. Mednik Ave., Los Angeles 22, Calif.

Plain and Ornamental Iron, Wire Fencing

493 A catalog is available from the Stewart Iron Works Co., Inc., 1521 Stewart Block, Cincinnati 1, Ohio, showing the company's chain link wire fence available in various heights, weights, and styles, and plain or ornamental iron fence. The company also makes steel settees 4, 5 and 6 feet long, and other wire, bronze, and iron products for the protection and beautification of public property.

Sanitary Fill Garbage Disposal

494 The Traxcavator handles all the steps for sanitary-fill garbage disposal—it digs the trench, builds ramps, spreads refuse, compacts and backfills the trenches, and levels and grades the surface areas. Other uses for this mechanism are street repair, snow removal, landscaping. Write for detailed information to the Trackson Co., Dept. AC-19, Milwaukee 1, Wis.

Cut Grass with a Sharp Mower

495 Bulletin No. 25B, from the Modern Mfg. Co., 160 N. Fair Oaks Ave., Pasadena 1, Calif., describes a lawn-mower sharpener that sharpens all reel-type mowers, hand, power, or gang, in 10 to 20 minutes. No dismantling of the mower is required, and no extra attachments are needed.

Clean Pipes Increase Water Capacity

496 When water mains have been reduced to a fraction of their original carrying capacity by internal incrustations, your water department is not giving its best service, nor operating economically. For data on methods of restoring mains to high transportability by means of thorough cleaning, write the National Water Main Cleaning Co., 50 Church St., New York 7, N. Y.

Reflective Marking Materials Increase Night-Driving Safety

497 Prismo reflective marking materials can be used for roadside aids, centerlines, on trains, airports, and the backs of large trucks. The motorist sees more clearly exactly what lies ahead—he does not see just another moving or stationery shadow of indeterminate size. Write the Prismo Safety Corp., Huntingdon, Pa.

Locate Undergound Lines

498 Wilkinson Products Co., P. O. Box 1774, Wilshire-La Brea Station, Los Angeles 36, Calif., will send you data on its line locator, that tells exactly where underground pipes are located without unnecessary and expensive excavating, resurfacing and relandscaping.

Rubber Joint Is Part of Pipe

499 Tylox joints, for highway and railroad culverts, subaqueous and irrigation pipe, siphons, and sewers, are designed so that the rubber joint is part of the pipe. Write for an illustrated folder describing this method to the Hamilton Kent Mfg. Co., Kent, Ohio.

For All Spraying Jobs

500 Myers sprayers may be used for weed, fly, and mosquito control, whitewashing, and disinfecting. Among the styles available are a wheel and a skid-type sprayer with capacities to 50 gpm and pressures to 800 pounds, wheel and skid-types for gun and boom use with a capacity of 7 gpm and pressure up to 400 pounds, and a new weed sprayer that has a 21-foot adjustable boom and yields a 60-pound pressure. Write for a folder to The F. E. Myers & Bros. Co., Dept. N. 192, Ashland, Ohio.

Aeration in Water, Sewage Plants

501 The Roots-Connersville Blower Corp., Connersville, Ind., has issued a new booklet, Bulletin 22-23-B-13, on rotary positive blowers, which may be used in sewage-disposal plants and for water treatment. The units work equally well under pressure, suction or a combination of both; displacement per revolution is fixed, and the speed is selected to give the capacity wanted.

Hydraulic Tower Lifts And Ladders

502 The hydraulic tower lift has a swivel-type insulated platform on which are the controls that maneuver the tower. This comes in 21-, 25- and 28-foot sizes. The revolving aerial ladder turns a complete circle in 46 inches and has 40 spotting positions in 360 degrees. Mountable on almost any size truck, the ladder comes in sizes of 23½, 26½, and 30½ feet. The Seagrave aerial platform ladder holds two or more men, reaches across a parked car, and allows workmen to operate at heights of 26 or 27 feet. The lowest height is 8 feet 9 inches. Write for information to the American Coach & Body Co., 9503 Woodland Ave., Cleveland 4, Ohio.

State Regulations Of Truck Sizes

503 The Four Wheel Drive Auto Co., Clintonville, Wis., will send you its 52-page booklet, *1949 Truck & Trailer Size & Weight Restrictions*, which includes comprehensive details of the road laws governing the individual state regulations of the size and weights of trucks and trailers. This is of particular importance in purchasing when the vehicles are to be used in interstate operation.

New Line in Can Carriers

504 The No. 16-S Tarco Street Sweepers' Friend can carrier has a rigid, single-unit welded frame, steel axles braced for correct wheel alignment, silent can clamp, full swiveling caster wheel, and new tool-carrying hooks to carry brooms horizontally. A level-lifting dirt scoop with a folding handle facilitates street cleaning. Write the Tarrant Mfg. Co., East Ave., Saratoga Springs, N. Y.

No Switchboards For These Generators

505 The Katolight AC generator, 175 kw, 60 cycles, 3-phase, 900 rpm, eight pole, 480-830-960-1,660-volt with overhead belted exciter, comes complete with a panel that includes the automatic voltage regulator, voltmeter, ammeter, and exciter field rheostat—no separate switch is required. Write the Kato Engineering Co., Mankato, Minn.

Diesel and Dual-Fuel Engines

506 Buckeye engines in sizes from 120 to 1,500 hp are of use in waterworks, sewage disposal, and public-utilities plants. Catalog 907 describes these diesel and dual-fuel, medium-speed, heavy-duty units; write the Buckeye Machine Co., 500 E. O'Connor Ave., Lima, Ohio.

Make Your Concrete Pipe Locally

507 Standards for making concrete pipe in your own town by hand methods using either the wet or semi-dry processes, in sizes for any-diameter pipe from 12 to 84 inches, tongue and groove or bell-end, in any length, are described in data supplied by the Quinn Wire & Iron Works, 1623 12th St., Boone, Iowa.

Automatic Contols For Pressure, Temperature, Flow

508 Learn about automatic controls and how they may be fitted to your water or sewage plant, or be used in your public buildings. Sewerage men will find the gas controls and thermostats helpful. Room thermostats and other equipment will be useful for general application. Write to General Controls, 801 Allen Ave., Glendale 1, Calif., and ask for Catalog 52E.

Stop Leaks Without Stopping Water Pressure

509 Flextite stops direct leaks instantly, waterproofs concrete, masonry, or brick, and reshapes spalled areas. One of the jobs it does that will appeal to waterworks men is stopping leaks without necessitating a decrease in water pressure. Write for an illustrated catalog to the Flexrock Co., Filbert and Cuthbert, West of 36th, Philadelphia 4, Pa.

With the Spring—Weeds

510 Ammate weed killer, for the non-selective control of hard-to-kill weeds, is a yellow crystalline salt that is non-poisonous, nonflammable. It may be used dissolved in water or applied dry. Write for a folder to E. I. du Pont de Nemours & Co. (Inc.), Grasselli Chemical Dept., Wilmington 98, Del.

Double-Disc Gate Valve

511 Bulletin 59 describes the Kennedy iron-body, double-disc gate valve, Fig. 56, 16 inches AWWA Standard, bell-end, nonrising stem, with working pressure 3 inches through 60 inches; water, 150 pounds per square inch. Write the Kennedy Valve Mfg. Co., 1030 E. Water St., Elmira, N. Y.

More Water Needed?

512 Layne well water systems provide 40 to 16,000 gpm through vertical turbine pumps. If your municipality requires more water, write for literature to Layne & Bowler, Inc., Memphis 8, Tenn.

One-Man Cleaning Of Street Litter and Snow

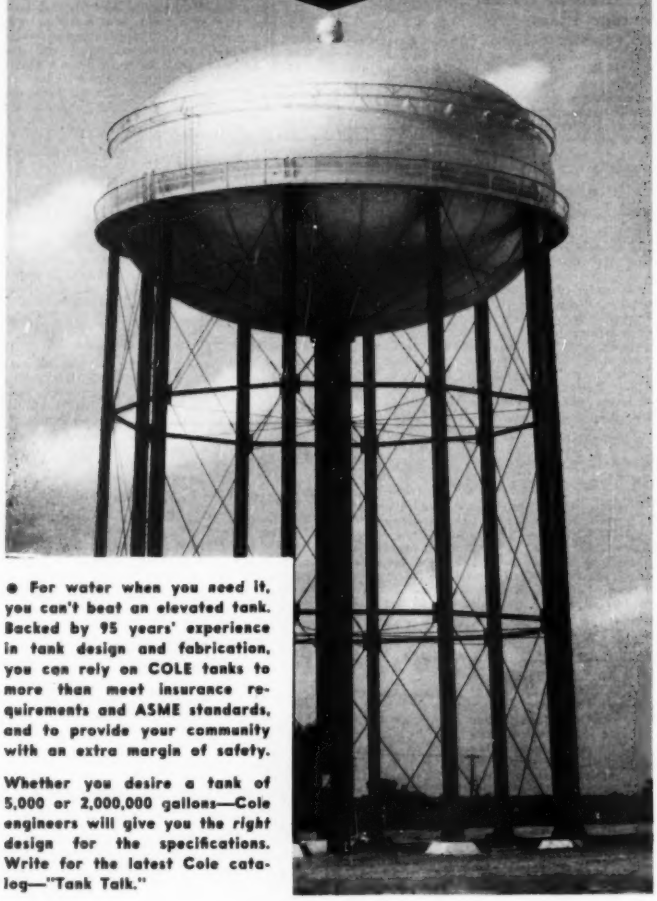
513 Little Giant Prod., Inc., 1585 N. Adams St., Peoria, Ill., makes a line of power sweepers, tow-type and mounted front-end, for trucks, tractors, and Jeeps that operate from power take-off. When snow removal, rather than street cleaning, is the objective, the brush can be replaced by a snow and bulldozer blade. A sprinkler attachment may be utilized when flying dust is a major annoyance.

Swirl-Cleansing Action Keeps Kitchen Grinder Clean

514 One of the features of the Mullinaider, the electric kitchen garbage disposer made by the Mullins Mfg. Corp., Warren, Ohio, is the swirl-cleansing action that always keeps it clean. Another is the reversible-direction design that minimizes service calls.

(Continued on Page 26)

BEST DEFENSE AGAINST FIRE

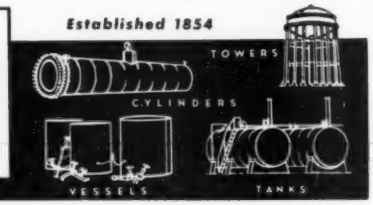


● For water when you need it, you can't beat an elevated tank. Backed by 95 years' experience in tank design and fabrication, you can rely on COLE tanks to more than meet insurance requirements and ASME standards, and to provide your community with an extra margin of safety.

Whether you desire a tank of 5,000 or 2,000,000 gallons—Cole engineers will give you the *right* design for the specifications. Write for the latest Cole catalog—"Tank Talk."

R. D. COLE MANUFACTURING CO.
NEWNAN, GA.

Established 1854



For You—Free

Please Use Coupon on Page 21

Standards Play Important Role In Good Street Lighting

515 Elreco lighting standards are adaptable to any type of modern pendant lighting unit—and the right pendant eliminates dangerous shadows from the lighted area. The standards have thick wall shafts throughout and the varied base design is adaptable to any type of wiring requirements. Write the Elreco Corp., Cincinnati 25, Ohio.

Electric Gates— Sure Cure for Traffic Accidents

516 Model N-N electric gates for protection at bridge approaches and railroad-highway crossings are operated by manual or magnetic reversing switches. Four models are available, operating at 7, 9, 11, and 13 seconds. The gate is furnished with roadway arms, roadway and sidewalk arms, steady burning or flashing lights, metal fences, and 12-inch traffic bells mounted on the cover of the gate mechanism. Write for literature to the Western Railroad Supply Co., 2406-2428 South Ashland Ave., Chicago 8, Ill.

Motor Scooters Speed Work For Municipal Departments

517 The Cushman motor scooter may be used in traffic control and for various types of municipal inspection, including parking meter regulations. For data about this vehicle that gives 75 miles to the gallon, write Dept. AC-19, Cushman Motor Works, Inc., Lincoln, Nebr.

Maneuverable Power Plow, Brush, Removes Snow

518 The Gravely 5-hp tractor with the HD snow plow blade or its rotary brush remove snow from around such obstructions as parking meters and posts with no trouble. The direct-gear drive and reverse are two reasons. Write for catalogs, *Power vs. Drudgery* and *No Worries When Snow Flurries*, to the Gravely Motor Plow Co., Box 73, Dunbar, W. Va.

Cement Gun Work Prolongs Concrete Life

519 The Gunite Concrete & Const. Co., 1301 Woodswether Rd., Kansas City 6, Mo., specializes in cement gun work: reservoir linings, concrete and masonry repairs, steel encasements, fireproofing, sewer lining and repairing, canal, ditch, and drain lining.

Beat That Corrosion Problem In Sewage-Treatment Plants

520 To avoid corrosion that is caused by industrial wastes, the Heresite & Chemical Co., Manitowoc, Wis., offers a finish containing anti-fungus agents which is resistant to moisture, mild acids, and alkalis. Write for the company's 30-page brochure on its line of phenol-formaldehyde synthetic coatings.

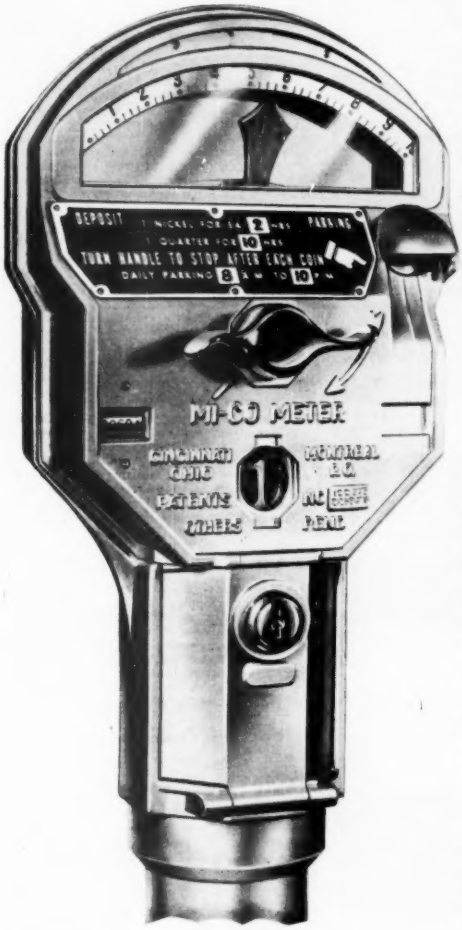
Meters For Large or Small Users

521 The Buffalo Meter Co., 2902 Main St., Buffalo 14, N. Y., manufactures meters in a complete range of disc sizes to meter large or small flows. Another advantage is the great interchangeability of parts.

(Continued on Page 28)

MI-CO PARKING METERS

make parking lots a better paying investment!



That's because rugged construction and fewer moving parts keep MI-CO Meters operating and producing under the severest conditions. Motorists don't get free parking because springs are run down, or the mechanism is jammed. And note the hooded coin slot. All coins are deposited in one protected slot—a big advantage in stormy weather. MI-CO parking lot meters will accommodate nickels and quarters, and may be set for the number of hours you require. And with MI-CO's reputation for low cost maintenance and earning capacity, you may be sure your metered parking areas will be worth-while investments. MI-CO's are made in ten models to meet all parking requirements. Check the list below. We'll be glad to send you complete information.

MI-CO METERS ARE AVAILABLE IN THE FOLLOWING MODELS

Model No. D-1—straight nickel meter, deposit of one nickel will allow maximum of 1 hour parking.

Model No. D-2—multiple coin meter, deposit of one nickel will allow maximum of 1 hour, or deposit of one penny will allow maximum of 12 minutes.

Model No. D-3—straight nickel meter, deposit of one nickel will allow maximum of 2 hours parking.

Model No. D-4—straight nickel meter, deposit of one nickel will allow maximum of 1 hour parking, and deposit of another nickel will allow maximum of 2 hours parking.

Model No. D-5—multiple coin meter, deposit of one nickel will allow maximum of 1 hour parking, or deposit of pennies will allow parking time in increments of 12 minutes each up to five pennies, for maximum of 1 hour.

Model No. D-6—multiple coin meter, deposit of one nickel will allow maximum of 1 hour parking, and deposit of another nickel will allow maximum of 2 hours parking, or deposit of pennies will allow parking time in increments of 12 minutes each up to ten pennies for maximum of 2 hours.

Model No. D-7—multiple coin meter, deposit of one penny will allow maximum of 12 minutes parking, deposit of one nickel will allow 1 hour parking, deposit of another nickel will allow maximum of 2 hours parking.

Model No. D-8—multiple coin meter, deposit of one quarter will allow maximum of 10 hours parking, or deposit of nickels will allow parking time in increments of 2 hours each up to five nickels for maximum of 10 hours.

Model No. D-9—multiple coin meter, deposit of one quarter will allow maximum of 5 hours parking, or deposit of nickels will allow parking time in increments of 1 hour each up to five nickels for maximum of 5 hours.

Model No. D-10—multiple coin meter, deposit of one quarter will allow a maximum of 5 hours parking time and deposit of another quarter will allow maximum of 10 hours parking time, or deposit of nickels will allow parking time in increments of 1 hour each up to ten nickels for maximum of 10 hours.

★ *Before you buy any parking meters, be sure to check the advantages of MI-CO Meters. They offer many outstanding features. Write for complete information and case histories.*

MI-CO METERS, 231 Court St., COVINGTON, KY.

Division of The Michaels Art Bronze Co., Inc. ***Representatives Wanted***

QUESTION { What hydrant can be repaired by one man in only 30 minutes after collision damage?

ANSWER: { The KENNEDY SAFETOP Hydrant

Inexpensive, quickly replaceable standpipe breaking ring and stem coupling take the blow . . . and the damage!

One man with socket wrench, large screw driver and light sledge hammer makes repairs in 30 minutes.

Complete interchangeability of all parts of each size lowers maintenance expense.

No flooding when broken . . . protects property. No need to shut off water during repair.

All adjustable parts enclosed within cap to prevent tampering or theft.

Double automatic drain valve assures complete drainage; prevents freezing; automatically closes as hydrant opens.

Easily extended for raise in street grade . . . without excavation or service interruption.

Scientific design of entrance elbow, without projections or pockets, decreases pressure drop.

Conforms to the specifications of the American Water Works Association.

Straight line operating mechanism minimizes pressure loss from inlet elbow to nozzles.

Extra large heavy standpipe cuts friction loss . . . withstands ordinary impacts.

Write for Bulletin 62

THE KENNEDY VALVE MFG. CO.
1030 EAST WATER ST.
ELMIRA, NEW YORK
VALVES • PIPE FITTINGS • FIRE HYDRANTS

OFFICE-WAREHOUSES IN NEW YORK, CHICAGO, SAN FRANCISCO • SALES REPRESENTATIVES IN PRINCIPAL CITIES

For You—Free

Please Use Coupon on Page 21

How to Get Better Lawns

522 F. H. Woodruff & Sons, Inc., Milford, Conn., will send you their booklet telling how to get better lawns. Among the topics discussed are the ideal seeding time, the importance of good top- and sub-soil, how to improve soil condition, the use of lime and fertilizer, grading of the seedbed, the selection of the seed mixture, how to choose base grasses, and a description of the varieties of grasses.

Dieselectric Plants

523 Witte dieselectric plants are full diesels, starting and operating on diesel fuel oil, and are easily adaptable for a wide variety of jobs since they are easily mounted on skids. Write for literature to the Witte Engine Works, Kansas City 3, Mo.

Standby, Supplementary, Or Main Power

524 The Caterpillar Tractor Co., Peoria 8, Ill., will send you information about its diesel electric sets which may be used for such purposes as providing standby power in case of emergencies as well as regular, supplementary, and main power. Write for data about the company's diesel engines, tractors, motor graders, and earthmoving equipment.

Materials for Municipal Uniforms

525 Reeves army twill, made to government specifications and sanforized, is just one of the types of materials manufactured by Reeves Brothers, Inc., 54 Worth St., New York 13, N. Y., for use for employee uniforms. This particular fabric has a high tensile strength and comes in a range of vat-dyed colors fast to sun, water, and perspiration.

Automatic Calculators

526 The Friden Calculating Machine Co., Inc., San Leandro, Calif., manufacturers a line of calculators that includes fully and semi-automatic multiplying, dividing, and tabulating models. Write for literature describing the 20 features that save time.

Big-Tractor Power, Small-Tractor Adaptability

527 The Ustrac is just 37 inches wide, which means it has unlimited uses in limited areas; its small size enables its use in soggy, loose ground, and instant reverse gives speed in bulldozing and backfilling since the tractor reverses without shifting gears. There are four forward and four reverse speeds, ranging from 1 to 8.1 mph. The working pressure is 800 pounds per square inch. Write the U. S. Tractor Corp., Warren, Ohio.

Steel-Hardening Compound

528 Hi-Speed-It makes drilling, punching, cutting, chipping, caulking, or gouging, by hand or air hammer, a quicker and more economical job in materials and manhours. This steel hardening compound enables all instruments to maintain efficiency much longer than instruments not so treated. Write for literature to the Necamp Metallurgical Laboratories, 1 Mercer St., New York 13, N. Y.

Lightweight Traffic Liner

529 The Jawco liner is constructed of steel throughout and has 10-inch-diameter wheels. Weighing about 40 pounds, this mechanism equipped with an aluminum brush block makes lines 4, 5, 6, 7, or 8 inches in width. The single front wheel follows a guide line, insuring a straight line regardless of road irregularities. Jawco colors available are white, yellow, red, and black. Write for information to the Weaver Machine Co., P. O. Box No. 1224, York, Pa.

(Continued on Page 32)

Now It's Here!

THE COMMUNICATION EQUIPMENT YOU'VE BEEN WAITING FOR...

UM 15-1—152-162 Megacycle (Not Illustrated)
VM 30-1—30 Watt Mobile Station, 25-50 Megacycle

25-50 and 152-162 MEGACYCLES *2 Way*

RAYTHEON RADIOPHONE

VS 50-1
50 Watt Fixed Station
25-50 Megacycle

Rugged.... Reduces Costs... Increases Efficiency

COMPARE RAYTHEON'S ADVANTAGES!

NOISE-FREE RECEPTION
COMPACT, ONLY 6" x 6½" x 15"
OUT OF SIGHT, OUT OF THE WAY
SIMPLIFIED INSTALLATION

COMPARE RAYTHEON'S PERFORMANCE!

LOWEST BATTERY DRAIN
LOW MAINTENANCE
LONG LIFE

COMPARE RAYTHEON'S PRICE!

LOWEST PRICE
IN THE INDUSTRY.
WRITE FOR QUOTATIONS
AND SPECIFICATIONS

RAYTHEON

BELMONT RADIO CORPORATION

A Subsidiary of Raytheon Manufacturing Company
5943 W. DICKENS AVENUE • CHICAGO 39, ILLINOIS

Sold Exclusively in Canada by Canadian Marconi Company, Montreal

MAIL THIS COUPON TODAY!

Belmont Radio Corporation
5943 W. Dickens Avenue, Chicago 39, Illinois

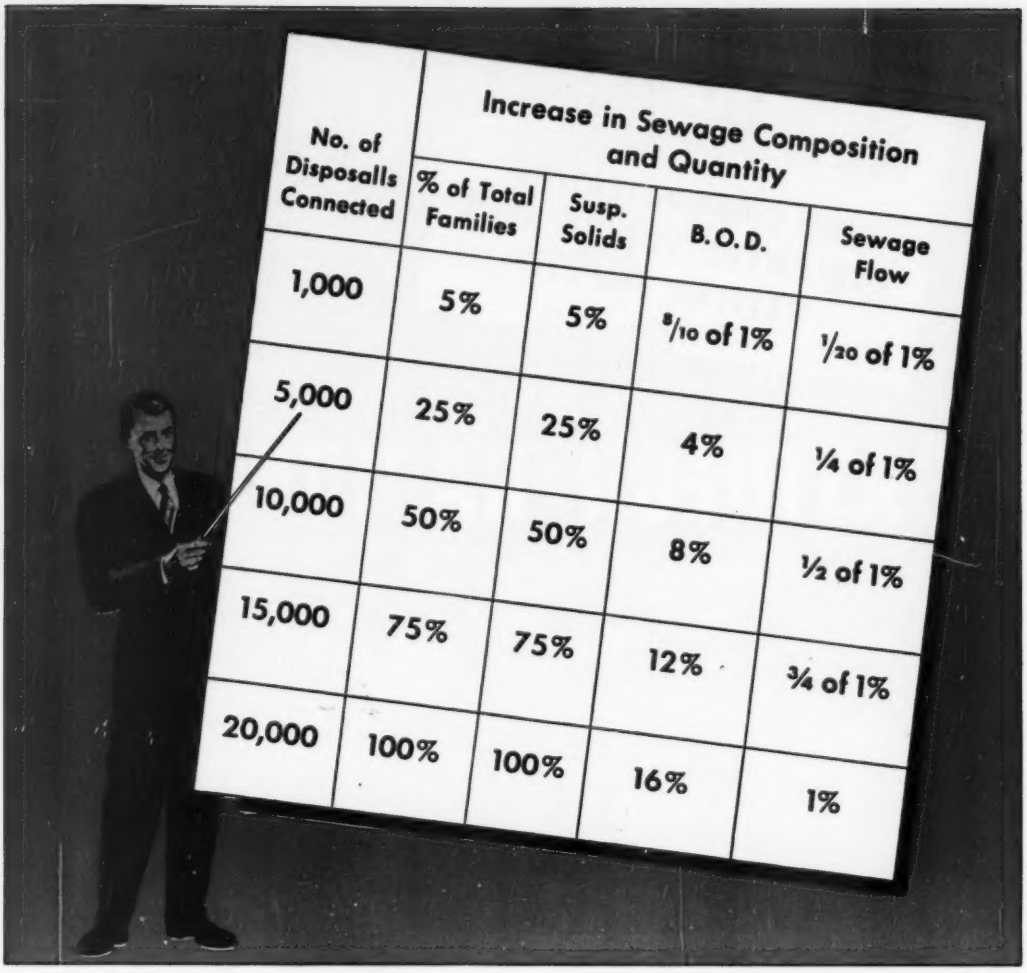
I'd like to have full information and literature on the new 2-way Raytheon Radiophone.

NAME_____

COMPANY_____

ADDRESS_____

CITY_____ STATE_____



We're glad you asked that question

HERE'S THE QUESTION most often asked by sanitation officials when first introduced to the General Electric Disposall*:

"Will this method of shredding food waste and flushing it into the sewer put too heavy a load on the sewer system and sewage treatment plant?"

Our answer to that important question has always been "No!" And it will be "No!" for many years to come.

When food wastes are ground, they are reduced to a far more uniform character than sewage solids themselves. Consequently, they flow even more readily through public sewer systems, they cause no stoppages, and they are readily treated at sewage treatment plants.

By applying the percentage lines shown above to your own city, you can see that in ten years the greatest number of Disposalls that might conceivably be installed would increase sewage flow gallonage less than ¼ of 1%.

The B.O.D. would be increased about 2.0% and suspended solids about 10%.

It is obvious that these increases could be adequately handled today without expanding the capacity of many plants. And remember, these increases are based on the assumption that one tenth of the homes in your community will have Disposalls within ten years. It takes many

years for an appliance as revolutionary as the Disposall to gain widespread usage. It will be ten years before even one home out of every ten has a Disposall.

The extra loading on the treatment plant caused by the Disposall method of garbage elimination will be but a "drop in the bucket!" for some years to come.

But we are glad you asked that question. It shows you are vitally interested in the great step forward which the Disposall method means to your community.

We only hope that you will continue to question—to examine closely—the merits of every food-waste shredder that bids for your acceptance.

For we can only answer for the General Electric Disposall, the product of years of careful development. And, because the Disposall is the pioneer in the field of scientific garbage elimination—and has proved itself in the laboratory and in countless homes—we can offer you our own strict list of specifications in the development of a dependable food-waste shredder.

We trust that these specifications—shown below—will be of value to you in judging all such appliances and in protecting the health, safety and economy of your community!

GENERAL ELECTRIC'S SPECIFICATIONS FOR ITS FOOD-WASTE SHREDDER— THE DISPOSALL

1. *The food-waste shredder should have a flow interlock that permits operation with cold water only, at a rate from 1.5 to 2.5 g.p.m.*

Experience has shown that only with cold water will greases become congealed within the unit. With congealed grease broken up into small particles, mixed with food waste and carried off through the drain, there is no tendency for greases to adhere to the walls of the pipe.

2. *The discharge from a food-waste shredder should always remain in a fluid state. The correct relationship between the amount of food waste and tap water should be maintained by controlled shredding.*

This permits the ready flow of effluent through traps, drain, or soil lines in a manner to prevent clogging.

3. *The food-waste shredder should shred food waste to a uniform size, to meet the following requirements: 100% shall pass a ½-inch screen. At least 90% shall pass a ¼-inch screen. Not more than 5% shall pass a #40 sieve.*

(Screens should be the United States standard, and weight should be taken on a dry basis.)

In other words, the particles of shredded food waste must be the correct size, to permit effective sewage clarification and sludge digestion at the treatment plant.

4. *The food-waste shredder should be self-scouring, with no fouling surfaces.*

This prevents objectionable odors; keeps the unit clean as a whistle.

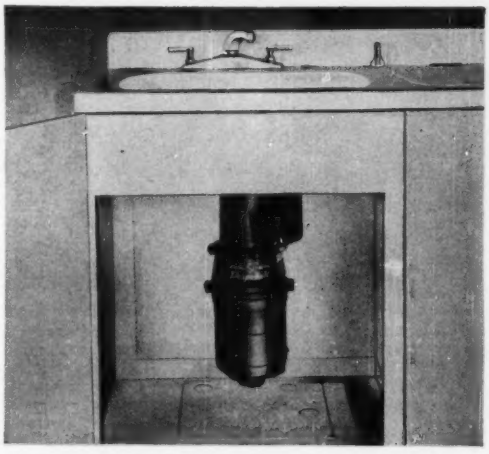
5. *The food-waste shredder should be free from electrical or mechanical hazards.*

To be completely safe, the shredding compartment should be inaccessible during operation.

6. *The food-waste shredder should be permanently connected to the drain, and should be free from any cross connection in accordance with the local plumbing code.*

This regulation eliminates any makeshift, homemade hookups, and permits the proper operation from sink to sewage treatment plant.

For further information about the Disposall method, simply write to Department AMC-492, General Electric Company, Bridgeport 2, Connecticut.



The General Electric Disposall is easily installed in almost any sink. Here it is shown installed in our electric sink. Food waste is scraped into drain opening, and safety cover is placed in position. The cold-water tap is then turned on, starting the Disposall operation. Food waste is shredded and flushed away automatically.

P. S. Thousands of Disposalls are operating successfully on private septic tank systems.

Disposall

*General Electric's registered trade-mark for its food-waste disposal appliance.

CONVERTS FOOD WASTE TO SEWAGE—ELIMINATES "GARBAGE"

GENERAL ELECTRIC

A Cyclone Chain Link Fence provides many types of protection!

Some people think of a Cyclone Fence *only* in terms of protection for property and equipment. But, in many intances, a Cyclone Fence performs other important functions.

For example, the Cyclone "Safeguard" Fence shown above is high enough (48") to prevent spectators from surging onto the field and possibly incurring injuries. And this fence eliminates a psychological hurdle for the players, because there is no danger that they will be "crowded" by onlookers.

An outer fence, to control admissions, is also important wherever gate receipts are a factor. And there is no better "entrance control" than that provided by a Cyclone "Invincible" Fence. Seven feet high, topped by three overhanging strands of taut barbed wire, it *forces* customers to enter at designated places.

Send for our free illustrated book. After reading it, you'll understand why *every* Cyclone Fence, no matter what its function may be, gives lasting, trouble-free service. And please remember: *No job is too large—no job is too small for Cyclone.*

CYCLONE FENCE DIVISION
(American Steel & Wire Company)
WAUKEGAN, ILLINOIS · BRANCHES IN PRINCIPAL CITIES
UNITED STATES STEEL EXPORT COMPANY, NEW YORK

U·S·S CYCLONE FENCE

CLIP THIS COUPON SEND IT TO—

Cyclone Fence, Waukegan, Ill., Dept. B-29
We'll send you our free, 32-page book on fence. It's full of facts, specifications, illustrations. Shows 14 types of fence. Before you choose any fence for your property, get the facts about Cyclone.

Name.....
Address.....
City..... State.....
Interested in fencing: ☐ Industrial; ☐ School; ☐ Playground; Residence. Approximately ..... feet.

USS
UNITED STATES STEEL

For You—Free

Please Use Coupon on Page 21

Smooth Lawns

530 Smooth velvety lawns depend on the lawn grass seed. For information about quality seed blended to tested and improved formulas, write the Albert Dickinson Co., 2764 West 35th St., Chicago 32, Ill.

Use a Rugged Drill

531 The truck-mounted McCarthy drill, especially appreciated in wet, muddy terrain since drilling can be done off the side or the end of the truck with the operator high and dry in the truck, is fully described in literature available from the Salem Tool Co., South Ellsworth Ave., Salem, Ohio.

Positive Overload Protection With These Meter Sockets

532 Two new pamphlets have been prepared by the Anchor Mfg. Co., 30 Huntington Ave., Boston 16, Mass. They give helpful information about controlling circuit overloads through the use of electric meter sockets to municipal officials concerned with electricity distribution. With the use of these sockets, there is no possibility of short circuits.

Valve-Box Locator

533 The Aqua Survey & Instrument Co., 2513 Leslie Ave., Norwood, Cincinnati 12, Ohio, makes a valve-box locator that finds hidden boxes, provides top-view reading, and is guaranteed in snow, ice, or any paving.

Loader Picks Before It Shovels

534 Even hard-frozen ice doesn't phase a Nelson R-10 snow loader, since this machine picks before it shovels with steel-toothed, renewable blades that dig deep. Since the operator has close control of the depth of the cut, the Nelson is easy on pavements. Write for a new bulletin describing the utility and heavy-duty sizes to the N. P. Nelson Iron Works, Inc., Clifton, N. J.

What Do You Want to Know About Diesel Engines?

535 *Diesel Power and Diesel Transportation* is a compilation of complete specifications covering almost every commercially manufactured diesel engine. Write to Benjamin's for Motors, 2124 Mill Ave., Brooklyn 10, N. Y.

Gasoline and Diesel Trucks

536 The GMC Truck & Coach Div. of the General Motors Corp., Pontiac, Mich., will send you information on its line of light, medium, and heavy-duty models in seven gasoline- and two diesel-engine styles.

96% Still in Service

537 Ninety-six percent of all the cast-iron water mains ever laid in 25 representative cities since 1817—50 million feet—in sizes 6 inches and larger are still in service. Write for a brochure giving all the facts to the Cast Iron Pipe Research Assn., 122 South Michigan Ave., Chicago 3, Ill.

Porcelain Enamel Signs

538 Texlite's porcelain enamel street signs remain clean-cut and readable after years of use. Available in any color, any lettering, any size, these signs are completely service-free and are acid resistant, fireproof, and weatherproof. Write Texlite Inc., 2900 Factory St., Dallas, Texas.

Kitchen Grinders Replace the Garbage Can

539 The American Kitchens Disposer has a "knee-action" hinge in the center of each pulverizer arm so that the disposer cannot jam, even on contact with metal. The kitchen garbage disposer has vertical shredders, saw-tooth hammers, and is easier to service. Write the American Central Division, Avco Mfg. Corp., Connersville, Ind.

For Economy

IN *small towns*

AND *large cities*

use

GarWood LOAD-PACKERS

What users say!

- "The Load-Packers reduced our collection costs 39%."
- "The public prefers the use of Load-Packers for their cleanliness."
- "We are more than satisfied with the excellent work this piece of equipment has done."

(Names of users on request.)

If you have problems in refuse collection from a cost standpoint . . . from a health point of view . . . from the manpower angle . . . call on Gar Wood. We are specialists in solving these problems for cities and towns of all sizes. Ask for Bulletin M-51 explaining how you can cut refuse collection costs and improve public health in your community.

Write for BULLETIN M-51

GAR WOOD GW INDUSTRIES

3806

GAR WOOD INDUSTRIES, INC. WAYNE DIVISION, WAYNE, MICH.

PRODUCTS—HOISTS • DUMP BODIES • WINCHES • CRANES • TANKS • TRACTOR EQUIPMENT
DITCHERS • SHOVELS • FINEGRADERS • SPREADERS • TRUCK PATROLS

Planned Lighting

FOR 'ROUND-THE-CLOCK RECREATION

YOU CAN BE SURE IF IT'S Westinghouse

Don't let darkness rob the people in your community of the chance to play. Give them the opportunity to get healthful recreation, long after sundown, with planned floodlighting.

The results can be far-reaching: Juvenile delinquency reduced, health standards improved, community spirit raised.

A Westinghouse Lighting Sales Engineer will be glad to help you plan a layout for your recreation areas. His services are available through your Westinghouse distributor. *He will gladly co-operate with you, your local utility and electrical contractor in the development of a plan.* J-04188

VRC-18
Rugged, all-weather floodlight for year-round sports. Extremely flexible. Beam easily directed by tilting adjustment. Cleaning is simple without removing fixture.

COMMERCIAL • INDUSTRIAL • FLOOD • STREET • AVIATION

Westinghouse Planned Lighting *Pays*

PLANTS IN 25 CITIES . . . OFFICES EVERYWHERE

Sure, he's one of the family!

He's MR. SOFT WATER!

For Dad: SOFT WATER cuts costs, speeds production and increases product quality at the plant! The tremendous industrial economy of soft water is a *big inducement* for new industries to locate in your city!

For Mom: SOFT WATER saves 50% on soap—makes washing easier—lightens housework—reduces plumbing repairs, and cuts fuel bills. No wonder every family welcomes SOFT WATER!

For 35 years Permutit Water Conditioning Equipment has softened municipal water supplies, and removed turbidity, iron and other impurities. Consult Permutit engineers without obligation. Write for information to The Permutit Company, Dept. **A-2,** 330 West 42nd St., New York 18, N. Y., or to the Permutit Company of Canada, Ltd., Montreal.

Permutit

WATER CONDITIONING HEADQUARTERS FOR 35 YEARS

WHEN THE GOING GETS ROUGH

The "Husky" has the rugged strength to stand up under snow, sleet, storms and sun; and deliver accurate, dependable, day in and day out performance. With its easy automatic operation, it brings trouble free parking control, high returns in revenue and public approval. And its price is low, *very low*. Be sure to write for full information.

THE *Husky* AUTOMATIC PARKING METER

Companion Meter to the famous KARPARK "SUPERIOR"

THE KARPARK CORPORATION • CINCINNATI 6, OHIO

THE HUSKY IS MANUFACTURED BY THE HERSCHEDE HALL CLOCK COMPANY

THE SILENT WATCHMAN

DIXIE TANK AND BRIDGE CO

3523 LAMAR AVE.—P. O. BOX 14, MEMPHIS 1, TENNESSEE

Representatives in the Following Cities:

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Box No. 1202
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GREENVILLE, S. C.
Box No. 1074
TAMPA, FLA.
Box No. 1642
RICHMOND, VA.
Box No. 886
NEWARK, OHIO
Box No. 623
FARGO, N. D.
Box No. 1472
COLUMBIA, S. C.
Box No. 472
DALLAS, TEXAS
Box No. 1881
DENVER, COLO.
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WAUSAU, WIS.
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SAN FRANCISCO, CALIF.
Box No. 1445
COLUMBIA, MO.
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MACON, GA.
Box No. 402
PROVIDENCE, R. I.
Box No. 202

Complete Service for Elevated Water Tanks—30 Years' Experience

BE SAFE DON'T GAMBLE

Keep the Safety Factor in Your Tank the Dixie Way . . .

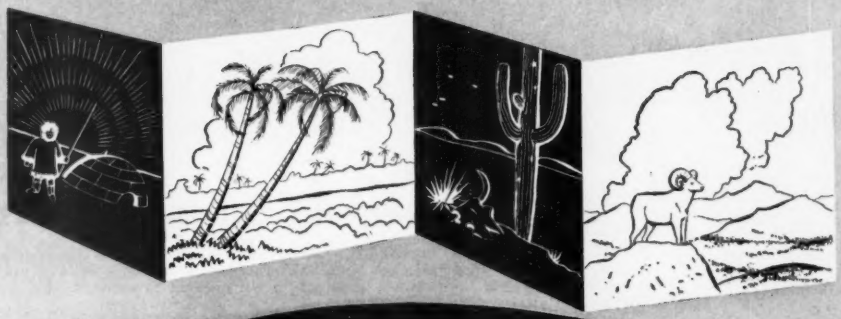
by welding seams, pits and rivets which gives a riveted tank 15% more Safety Factor than it had when built. No rivets removed, water supply maintained while work is in progress. On completely re-conditioned jobs, the painting is guaranteed for five years, repairs guaranteed for ten years, provided the tank is painted every five years. Yearly inspection, making all adjustments, if any, without additional cost.

Write us for Free Copy of Publication

SOUND PRINCIPLES OF WATER TANK MAINTENANCE and TANK TALK, *by* W. A. RILEY
SAFETY • SERVICE • SATISFACTION
COPYRIGHT 1947

THE LARGEST ORGANIZATION OF ITS KIND GIVING SAFE MAINTENANCE AT LOW COST

Any place is HOME



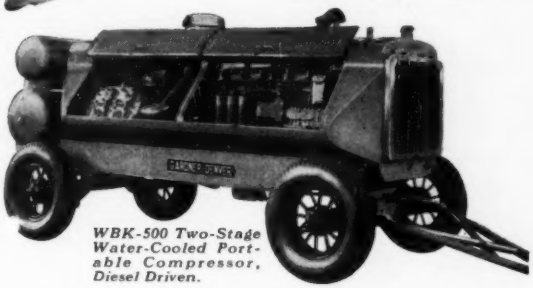
. . . to a *Water-cooled* portable

HOME is wherever you send a Gardner-Denver All Water-Cooled Portable to give uninterrupted service. For the *complete* water jacketing of all cylinders "weather-conditions" them for outstanding performance around the world . . . in hot climate or cold . . . at high or low altitudes.

Gardner-Denver Portables at work in all lands deliver cooler air . . . start easier in cold weather . . . use less lubricating oil . . . save wear and tear on air hoses. And don't forget, wherever these compressors go, they are backed by Gardner-Denver Service—all over the world.

For complete information, write Gardner-Denver Company, Quincy, Ill.

WHF-210 Two-Stage Water-Cooled Portable Compressor, Engine Driven.

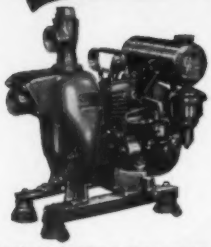


WBK-500 Two-Stage Water-Cooled Portable Compressor, Diesel Driven.

GARDNER-DENVER SINCE 1859

COMPARE O. S. C. SEPTIC TANK CLEANING

WITH OLD FASHIONED, UNSANITARY METHODS



GORMAN-RUPP'S NEW "MIDGET" 1½" PUMP

FASTEST, self-priming, most efficient pump for general use. Weighs but 62 lbs. -- pumps 5500 GPH -- self-primes up to 30 ft. -- non-clogging, sturdy. Gorman-Rupp builds a complete line of pumps from the "HANDY", delivering 8 GPM, to large capacity pumps which deliver as high as 125,000 GPH.

When a Sanitary Service Operator puts a new Gorman-Rupp Odorless Sanitary Cleaner on the job these are the results:—

1. A disagreeable job becomes pleasant, easy work.

2. Unsanitary methods and unhealthy conditions eliminated. Septic tank cleaning with an O. S. C. unit complies with or exceeds health regulations and requirements. It banishes open tanks, diaphragm hand pumps, shovels and other makeshift equipment.

3. It does each job more thoroughly, in a fraction of the time previously required. For example, 500 gal. tanks are cleaned in 15 minutes, 1000 gal. tanks in 20 minutes.

4. It offers operators profit possibilities far in excess of income with present equipment and methods.

5. An O. S. C. unit has other profitable uses such as transporting water, emergency fire fighting, sprinkling, dewatering, etc.

Show this to Sanitary Service Operators in your community. For complete information write for Bulletin 7-ST-11.

THE GORMAN-RUPP COMPANY

343 N. BOWMAN STREET, MANSFIELD, OHIO

GEOPHONE*

Does Away with Costly, Old-Fashioned Methods of Locating Leaks!

Complete Geophone outfit consists of connecting tubes, two Geophone discs, headpiece and heavy leather-covered carrying case with shoulder strap. **$85**

• MONEY-SAVING
• ACCURATE
• FAST

★ The Globe Geophone scientifically and accurately locates water and steam leaks. There's no costly, time-consuming excavation when a Geophone is used. A compact and sensitive instrument operating on the principles of the seismograph and stethoscope, the Geophone picks up and detects, even when 50 to 75 ft. away, the vibrations of the pipe break, and locates it accurately within a few minutes.

The Geophone is indispensable for Water Departments and Industrial Plants. Used also with spectacular results in mining, oil and termite fields.

Pipe Phones **$3.70**
(Aquaphone)

Globe Phone Mfg. Corp. **READING, MASS. Dept. Y**

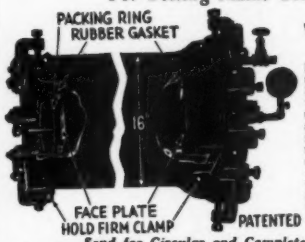
Manufacturers of Geophones Since 1918

*Registered in United States Patent Office

"HOLD FIRM"

A NEW TEST PLUG

For Testing Mains Conveying



WATER GAS
OIL AIR

For testing cast iron, steel, transite, soil and concrete pipe lines, without the necessity of valves; test pipe as you lay them; eliminate open trench and hazards; special for testing reclaimed pipe, valves and fittings. Installed by any unskilled laborer; withstands 300 lbs. hydrostatic pressure, light in weight; same clamps fit many sizes. Used by the City of Chicago, contractors and municipalities.

Send for Circular and Complete Information

TEST PLUG MFG. CO. (not Inc.) SKOKIE, ILL.

STREET SIGNS

Mak-A-Sign letter-changing stencils are easy to use, fast, efficient, inexpensive to operate. Makes legible street name on curb, sidewalk, wood or concrete posts, or signboards. *Write for Descriptive Folder and Prices.*

Exclusive territories open for SALESMEN or Distributors now doing business with municipalities. Send full details.

MAK-A-SIGN CO.

P. O. Box 2290, Birmingham, Alabama

Save...

Time, Money and Labor in making pipe joints

« « « The only field equipment necessary to make a Universal Cast Iron Pipe Bolted Joint is a Ratchet Wrench.

by using

**UNIVERSAL*
CAST IRON PIPE**

(PIPE and JOINT are ONE)

*Reg. U. S. Pat. Off.

Outstanding Advantages:

(1) *No calking or pouring of lead or lead substitutes. No gaskets used.*

(2) No bell holes to dig. Can be laid in a narrow trench. Cost of wide trenching is eliminated.

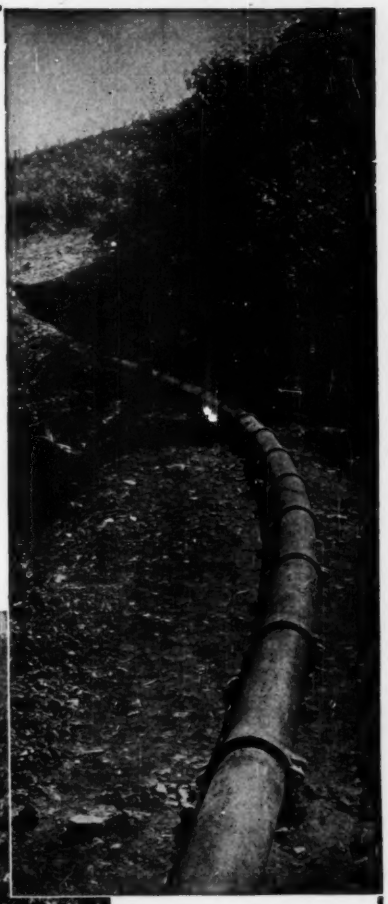
(3) *Can be laid with SPEED. Easier and cheaper to install because only two bolts need to be inserted in the lugs, tightened with a ratchet wrench (the only tool needed), and the completed joint is made in a few minutes. Experienced workmen are not needed.*

(4) Nothing to deteriorate; nothing to work loose, no leakage; no maintenance cost.

(5) Flexibility: Universal pipe is very flexible. It withstands expansion, contraction, unequal settlement, vibration and shock, and electrolysis. Many curves are laid with straight lengths and do not need special fittings.

(6) *Universal pipe can be laid on rocky soil, under water and in sub-zero weather.*

THE CENTRAL FOUNDRY CO.
386 FOURTH AVENUE, NEW YORK 16



Above *All straight lengths of Universal pipe in this curve.*

At left *16" pipe laid on a 45-degree slope. Note deflection at top to level ground without fittings.*

USE THE COUPON

DEPT. C

THE CENTRAL FOUNDRY COMPANY
386 Fourth Avenue, New York 16, N. Y.

I am interested in SAVING LABOR, TIME, MONEY and EQUIPMENT in pipe-laying. Send me the UNIVERSAL catalog.

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Position .....

Address .....

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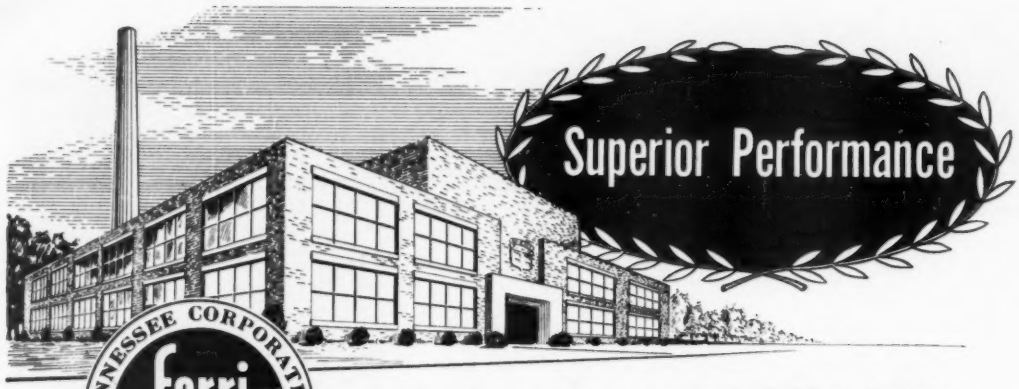

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TENNESSEE CORPORATION
Ferri-Floc
FERRIC SULPHATE
Atlanta, Georgia

...of a Superior COAGULANT

SEVEN ADVANTAGES OF FERRI-FLOC

1. Coagulation is effective over a much wider pH range than with other coagulants. Color flocs may be formed in the very acid range where other coagulants may not be employed. On the other hand, true hydrated ferric oxide flocs may be formed at pH 9-10 or even higher for the removal of turpidity and manganese.
2. The time required for floc formation, conditioning and settling is in many cases considerably shorter than that required for other coagulants.
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5. Effluents may be produced which are exceedingly low in both iron and aluminum.
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7. Ferri-Floc does not seem to stick to sand grain to form mud balls, and is subject to less "breaking through" on the filters.

Let us send you FREE, this valuable booklet on Ferri-Floc.
Write TENNESSEE CORPORATION,
Grant Bldg., Atlanta, Ga.

Many of the country's larger plants are now recognizing the advantages offered by Ferric Coagulants and are taking advantage of them through Ferri-Floc. — Ferri-Floc eliminates the troubles encountered with other coagulants by improving general quality, reducing overall cost. — All of this is accomplished without costly changes in plant equipment.

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Atlanta, Georgia — Lockland, Ohio

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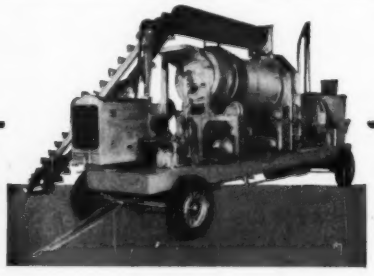
SUPERLINER MODEL... REAR ENGINE DRIVE

Streamlined, sleek, and modern is this Etnyre Superliner model. Standard equipment includes 3 nozzles, 600 G. P. M. pump, 800 to 3000 gallon tank. Motor enclosed in rear compartment —easily accessible for servicing. Also used for fire fighting, tree spraying, many other jobs. Get delivery schedules and prices from your Etnyre dealer or write us today.

E. D. ETNYRE & CO., Oregon, Illinois



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Almost any type of pavement can be repaired economically and efficiently with a White Portable Asphalt Plant. Asphalt, brick, concrete, macadam, can be easily patched or resurfaced.

It will match any bituminous surface. Produces for immediate hot application or makes mix for deferred cold laying.

Contains internally fired rotating dryer, pug mill mixer, bituminous heating kettle, volumetric measurement, air controls. Mounted on pneumatic tires, or furnished for stationary operation. Capacities 4, 8, 12, 25 tons per hour.

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Elkhart White Mfg. Co. Indiana

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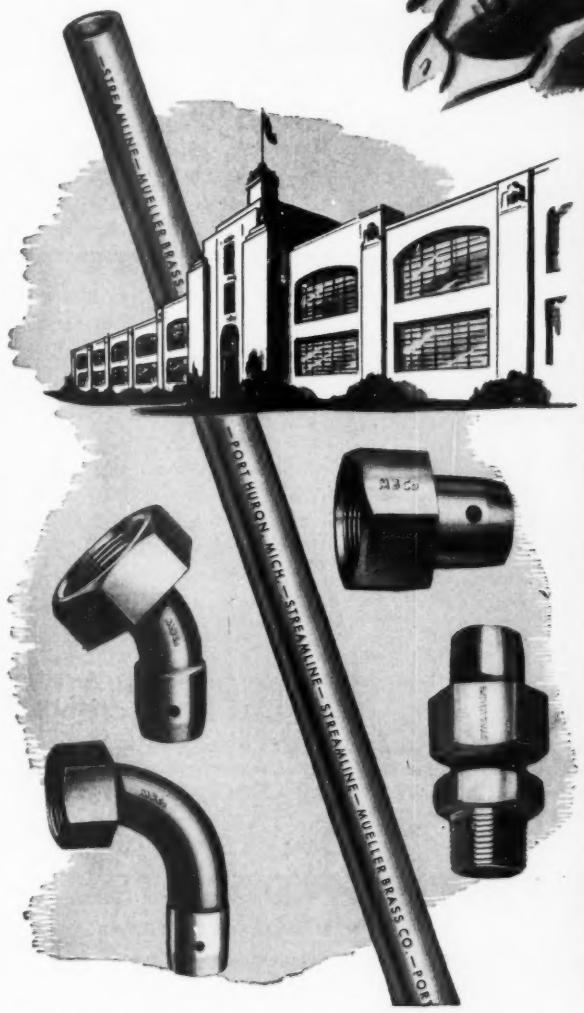
— and sound planning, too



you specify Streamline Copper pipe and fittings knowing your choice will pay dividends —

★ Because an installation of STREAMLINE Copper Pipe and Fittings insures a non-rusting, trouble-free piping system for water service work or for plumbing and heating in the plant buildings. With the possible exception of extremely abnormal water or soil conditions, it need never again be replaced.

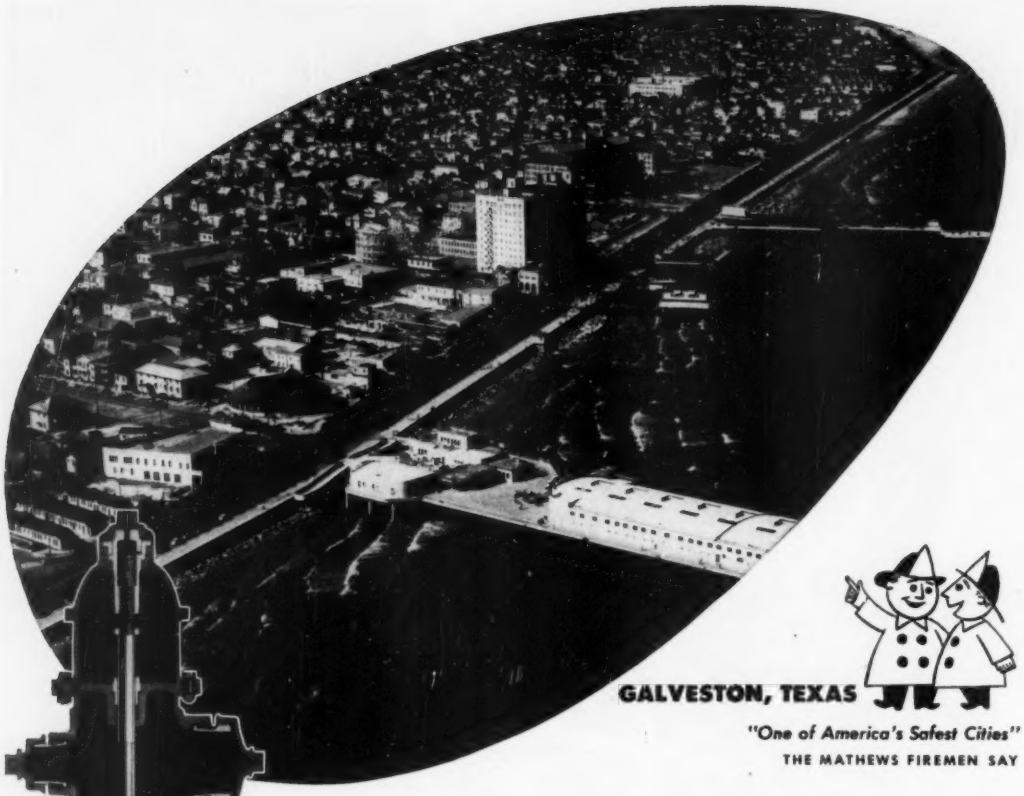
Type K pipe is soft and ductile. Constant vibration, resettlement of fill, etc., has no effect upon it. It soon pays for itself in long, trouble-free service, without replacement or repair bills.

STREAMLINE

PIPE AND FITTINGS DIVISION

MUELLER BRASS CO.

PORT HURON, MICHIGAN



GALVESTON, TEXAS

"One of America's Safest Cities"
THE MATHEWS FIREMEN SAY

THAT's because this great island-city, "Gateway to the Southwest," is protected by Mathews Hydrants, and wherever you find these hydrants you find safety-plus.

Suppose a critically-important Mathews in Galveston should be bowled over by a truck. The hydrant could be restored to service in a few minutes, and without any excavating. For all the working parts are contained in a removable barrel, easily replaced. Water cannot reach the thread to rust it or deposit sand. The revolving nut is protected against entrance of rain and dust. The main valve is true compression-type—insurance against flooding and against strain on the internal parts.

Send for complete description about these proved guardians of life and property. Your community, the most important in the world to you, deserves the best in fire protection.

OTHER MATHEWS FEATURES: Head can be rotated 360° • Replaceable head—nozzle outlets easily changed • Nozzle levels raised or lowered—no excavating • True compression-type main valve • Only one part to lubricate—operating thread • A modern barrel makes even the oldest Mathews new

MATHEWS HYDRANTS

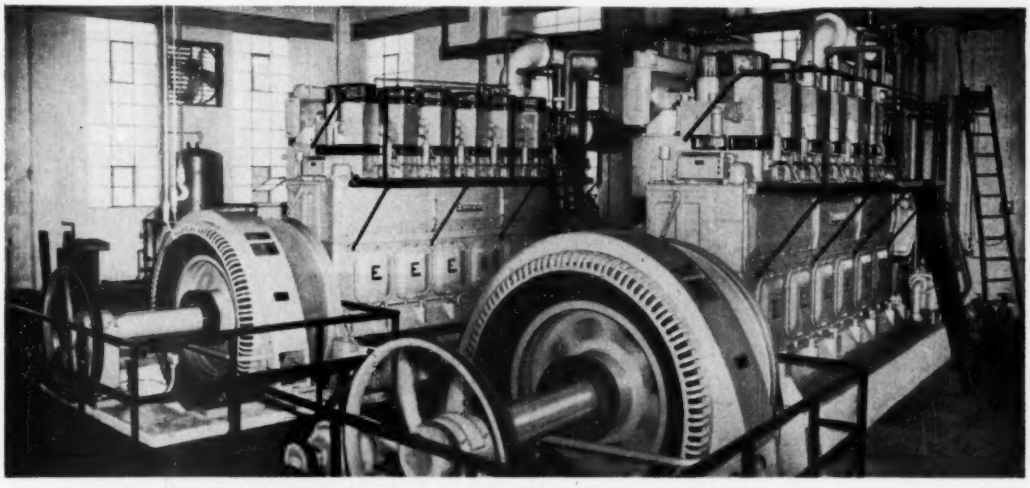
***Made by* R. D. WOOD COMPANY**

Public Ledger Bldg., Independence Square, Philadelphia 5, Pa.

Manufacturers of "Sand-Spun" Pipe (centrifugally cast in sand molds) and R. D. Wood Gate Valves

FOR *REA CO-OPS*, TOO — ENTERPRISE DIESELS OFFER DEPENDABLE POWER FOR PRESENT NEEDS *PLUS* FUTURE GROWTH

A familiar sight in generating plants throughout the world, Enterprise Diesels continue to set the pace in power progress—dependably and economically fulfilling power requirements within their broad range of application. Such outstanding REA projects as the recently completed Glades Electric Cooperative at Moore Haven, Florida, is further testimony to Enterprise's story of high quality equipment doing everything demanded of it—and more. These two Enterprise DSQ-36 Diesel generating sets are daily proving their worth in supplying a higher continuous electrical output to the co-op than ever before, at comparatively low cost. Enterprise engineers —backed by 62 years of experience in the manufacture of power equipment—will welcome the opportunity of showing you how to save with Enterprise Diesels, choice of the power experts.

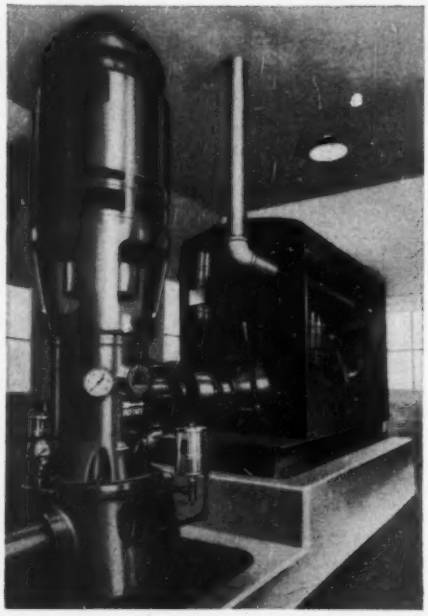


Enterprise 4-Cycle Diesel Engines and Generating Sets are available in a wide range of sizes and models up to 1800 HP per unit, tubocharged or normally aspirated. Ask for new Bulletin No. 203 for further information.

ENTERPRISE Diesels

ENTERPRISE ENGINE & FOUNDRY CO.
18TH & FLORIDA STS., SAN FRANCISCO 10, CALIF. *OFFICES IN PRINCIPAL CITIES*

When Power Lines Fail Depend on



JOHNSON Combination DRIVES

CONTINUOUS WATER SUPPLY... protects the public health and reduces fire hazard.

FLOOD DAMAGE... insures 24-hour operation of drainage pumps in any emergency.

RESERVE POWER... will transmit additional power to meet emergency requirements.

SEWAGE... the ideal Drive for continuous 24-hour constant service.

ADAPTABLE... available in a number of sizes and types to meet varied application.

WORLD WIDE ACCEPTANCE... in recognition of dependable service, economy of operation and maintenance. Hundreds in use by municipalities. (See illustration.)

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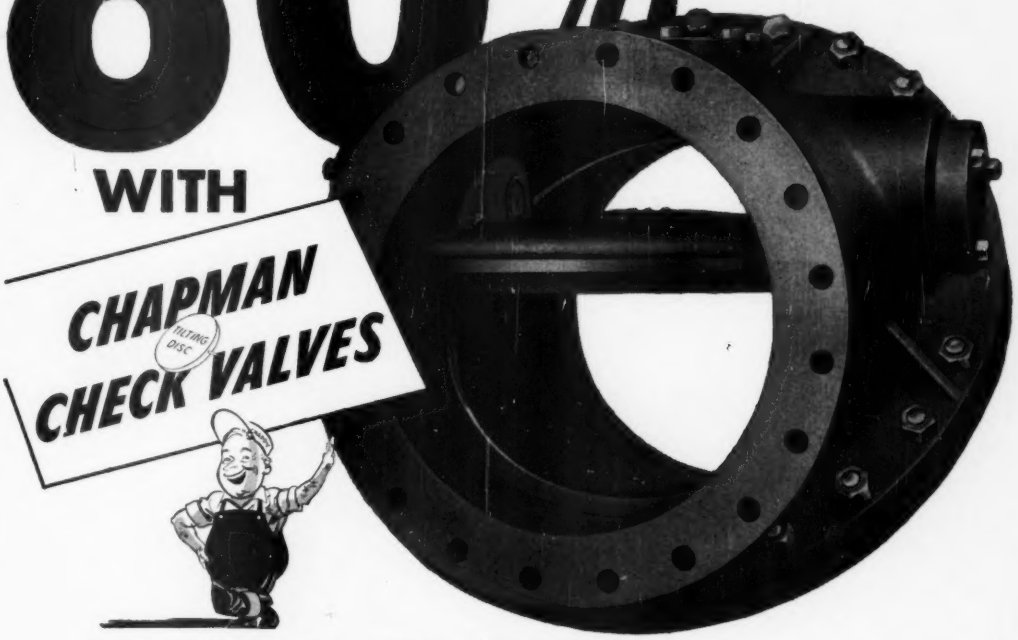
STORAGE BATTERIES
FOR MUNICIPALITIES

HAND storage batteries are heavy-duty batteries provided with heavy, hand-pasted tank-formed plates, heavy glass mats, acid and heat resisting micro-porous rubber separators, splash decks and genuine hard rubber containers. Built for use in Police Radio cars, Sanitation trucks, snow plows, sweepers, emergency trucks, ambulances, and fire apparatus.

The Hand Laboratory, Nyack, N. Y.

SAVE UP TO 80% IN HEAD LOSSES

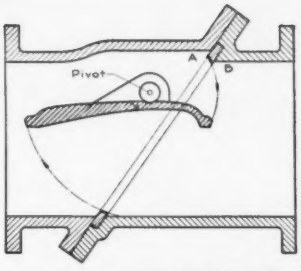
WITH CHAPMAN TILTING DISC CHECK VALVES



Because of its free-flow design and balanced streamlined disc, head losses are reduced to a minimum in Chapman Tilting Disc Check Valves. Actual experience has shown savings of from 65% to 80% in head losses over conventional type check valves.

There's only *one moving part* in Chapman Tilting Disc Check Valves—the balanced hinge-pinned disc. When opening, this disc lifts away so that there is minimum wear on the seat. And once opened, it rides smoothly on the flow, minimizing wear on bearings and pins. It closes quickly and quietly because of the effect of the stream on the short flap. Hammering and consequent strains on pipe lines are eliminated.

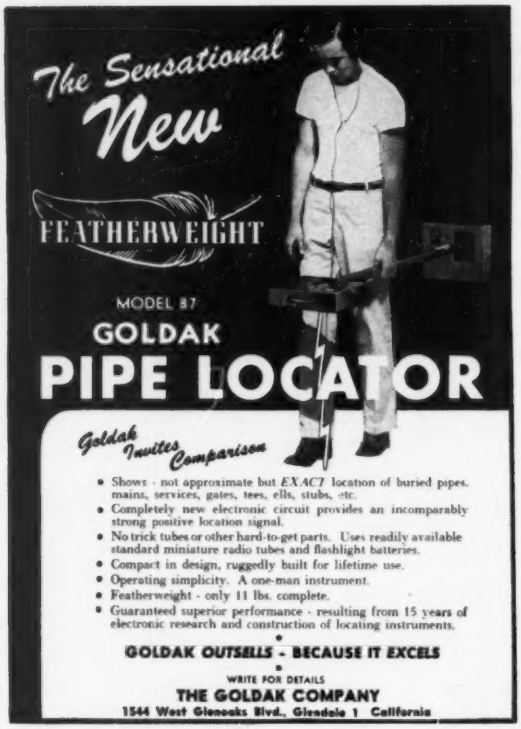
Chapman Tilting Disc Check Valves are available in either iron or steel. Send for bulletin containing engineering data and reports of tests.



Cross-section of the Chapman Tilting Disc Check Valve illustrating the way that the balanced disc is supported on the pivot, with arrows showing the travel of the disc. A feature of the design is that the disc seat lifts away from the body seat when opening, and drops into contact when closing, with no sliding or wearing of the seats.

The Chapman Valve Mfg. Co.

INDIAN ORCHARD, MASS.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New
FEATHERWEIGHT
MODEL 87
GOLDAK
PIPE LOCATOR
Goldak Invites Comparison
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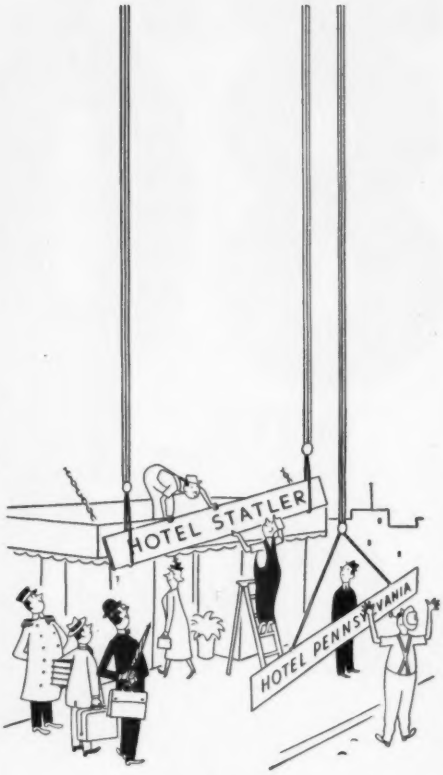

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Hotels Statler Co., Inc.

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are preferred by experienced Water Works officials because of their dependability, accuracy and low maintenance cost

All Bronze Case up to 6 inches

Hersey Manufacturing Company
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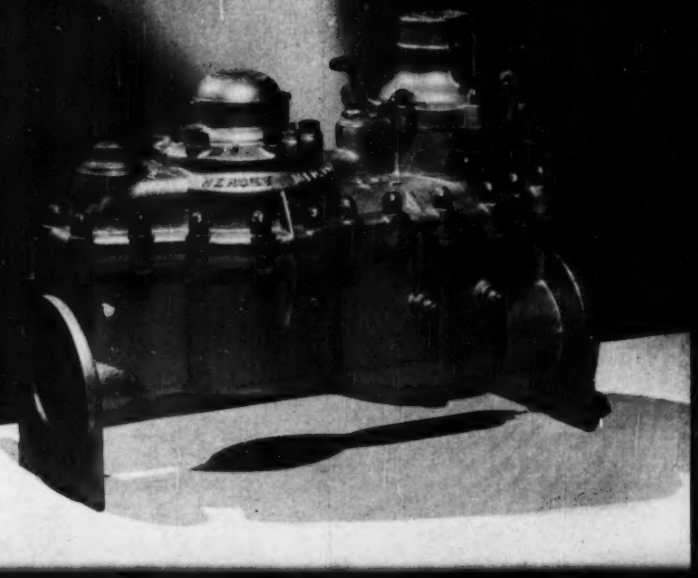

Another Big Housing Project Specifies
300 HOMES INSTALL CLAY PIPE SEWERAGE SYSTEM
The new 300-home Byrne-Moline Communities Housing Project at Moline, Illinois, selected Vitrified Clay Pipe exclusively for all its sanitary sewers. The over-all job includes 49,300 feet of Clay Pipe. This new housing is a project of Byrne-Moline, Inc., and is under the supervision of William M. Coopman, Moline City Engineer.

Vitrified Clay Pipe 100%

Vitrified Clay Pipe is chemically inert throughout because it is made of nature's own basic material. Through and through it is the same long-lasting clay, *heat-bonded at fusing temperatures* into a strong, permanent pipe that never wears out! Clay Pipe is rust-proof, corrosion-proof, and acid-proof . . . needs no paints or other coating to protect it from the action of corrosive soils, water, or the chemical action of waste materials.

Write for Information on Your Clay Pipe Question

NATIONAL CLAY PIPE MANUFACTURERS, INC.

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522 First National Bank Bldg., Atlanta 3, Ga.
703 Ninth & Hill Bldg., Los Angeles 15, Calif.
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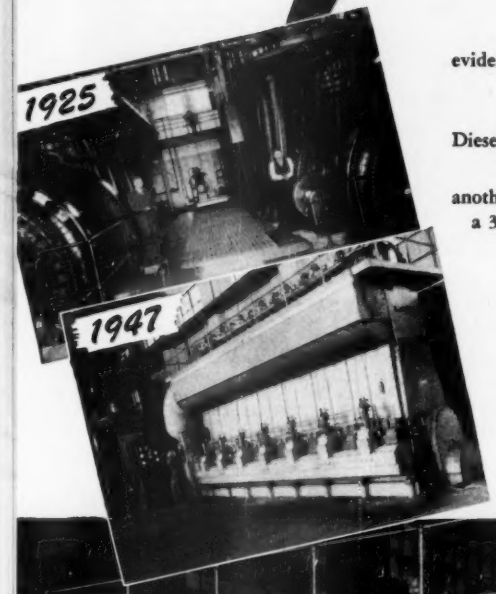
Vitrified CLAY PIPE

CLAY PIPE NEVER WEARS OUT!

C-1147-38

4th NORDBERG DIESEL

for Marquette, Michigan



Experience of the City of Marquette, Michigan, is evidence of the versatility of Nordberg Diesel Engines in meeting fast-changing power requirements.

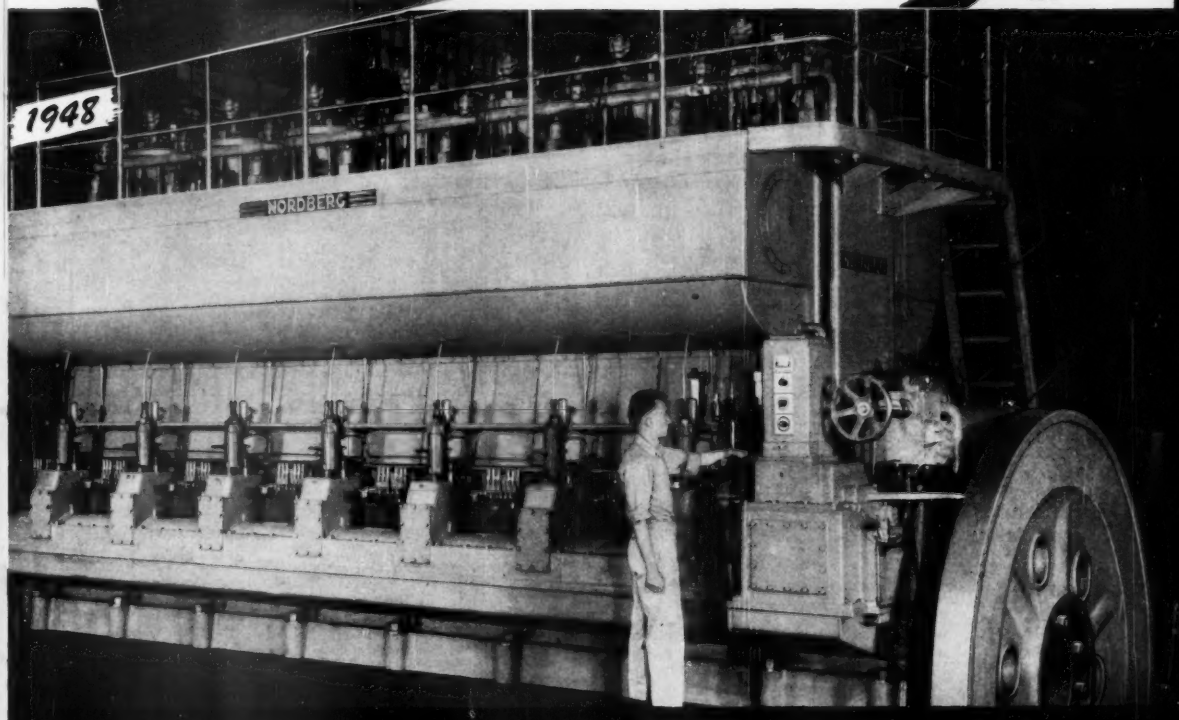
In 1925, during a serious power shortage, two Nordberg Diesels were installed in order to restore service quickly.

In 1947, needing an additional engine quickly to meet another power shortage, Marquette installed their third Nordberg—a 3000 H.P. unit. Since then, to help meet the power shortage which has continued to exist, their fourth Nordberg Diesel was shipped, and is now being installed.

For regular or emergency service, you can't beat the advantages of Nordberg Diesels . . . they can be added to the line quickly, and can be held ready for instant service without exorbitant standby expense.

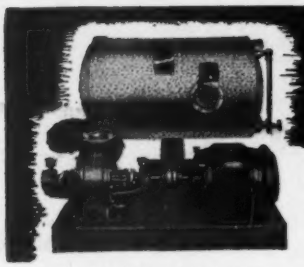
NORDBERG MFG. CO.
MILWAUKEE 7, WIS.

P249



A DIVISION OF NORDBERG

NORDBERG
DIESEL ENGINES



CONDENSATE RETURN at its BEST

Capacities to 150 G.P.M.
(Both Horizontal and Vertical)

APCO Horizontal Simplex Condensation Return Unit

These units are available in simplex and duplex types—designed for the automatic return to high and low pressure boilers of the hot water condensation from radiators, coils, etc. Catalogued in sizes ranging from 2,000 to 100,000 sq. ft. equiv. radiation. Larger sizes available.

APCO TURBINE-TYPE PUMPS

Apcos are ideal for the above service or any small capacity, high head duty. The one moving part, the impeller, is free running, therefore unaffected by heat expansion. Ability to maintain practically constant capacity against drastic pressure conditions is another of many distinctive features.

AURORA CENTRIFUGALS
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VERTICAL
NON CLOG
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MIXED FLOW
SPECIAL DESIGN
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AURORA PUMP COMPANY
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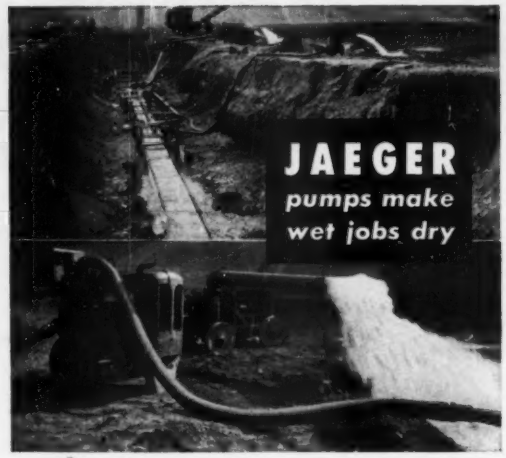
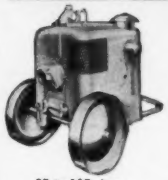


JAEGER
pumps make wet jobs dry



2" to 10" sizes

Extra powered, conservatively rated and sure-primed by two simultaneous priming actions, Jaeger Pumps have the capacity to dewater faster and the stamina to pump until the job is done. Overall enclosures protect from weather. See your Jaeger dealer.

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COMPRESSORS • MIXERS • HOISTS • PAVING EQUIPMENT

LEADITE

FOR JOINTING CAST-IRON WATER MAINS

Melted and Poured *No Large Bell-holes to Dig*
Saves at Least 75%

Leadite is shipped in powder form, packed in sacks of 100 lbs. net each. Leadite tested and used for over 50 years • Leadite joints improve with age.

Be sure it is Leadite and accept no imitations

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No Caulking

FLINK SPREADER

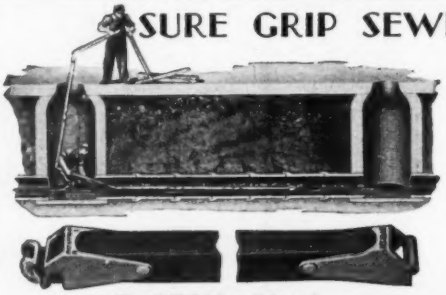
UNQUESTIONABLY THE FINEST HYDRAULIC SPREADER

Hundreds more transportation companies, cities and counties are using Flink Spreaders to spread granulars in ice control and highway maintenance work. Spreads forward or backing up, full or half width of street. Controlled from cab.

Write for literature.

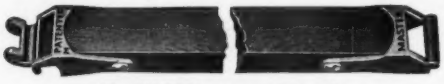
FLINK CO. Dept. S-1, STREATOR, ILL.

SURE GRIP SEWER RODS and ACCESSORIES



The REGULAR, a light rod,
Fir stock 1¼ x 1¼ inch square.

are joined together with a dual lock forming a rigid chain that will float. They can be coupled or uncoupled upon the street if desired. Made in two sizes.

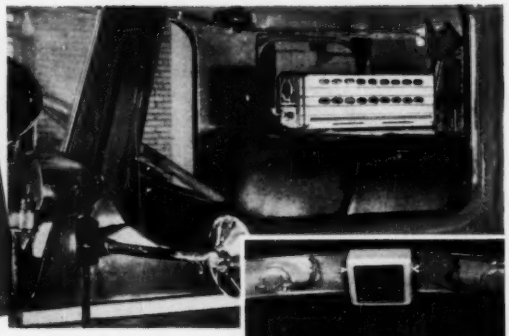


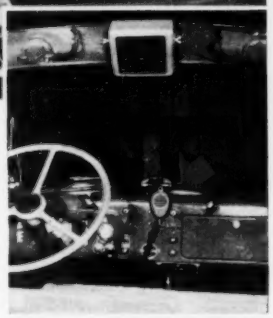
The MASTER, a heavy duty rod,
Fir stock 1½ x 1½ inch square.

Write for catalog on complete line of sewer cleaning equipment.

EXPANDING SEWER MACHINE CO.
NAPPANEE, IND.

In progressive Rockford, Illinois IT'S GE RADIO COMMUNICATION





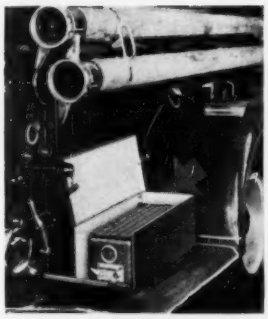
● G-E 152-162 MC equipment mounted in one of Rockford's new cab-type pumpers. (Inset) Loudspeaker above—controls and microphone on dashboard—at operator's fingertips.

CITY management and safety officials have long known that their best weapon in public emergencies is radio communication.

In more and more communities the trend is to General Electric radio equipment for fire, police, ambulance and hospital service, highway maintenance, water supply—public services of all kinds requiring speed and mobility.

Have you examined *all* the possible benefits your city may realize through radio communication? *Ask General Electric.*

For complete information, call the G-E office nearest you, or write: *General Electric Company, Room 102, Bldg. 3-A, Electronics Park, Syracuse, N. Y.*



● G-E single unit transmitter-receiver installed in small weatherproof space on open pumper. Plug-in chassis permits quick, easy maintenance.

● This G-E equipped emergency vehicle is one of a fleet of radio-controlled vehicles in Rockford Police force headed by Chief F. A. Bengston (left.) G-E radio control multiplies efficiency of each car—increases public safety.

● "We save precious minutes directing fire operations with G-E two-way radio," says Chief Wayne E. Swanson. Rockford Fire Dept. uses G-E mobile radio in 14 pieces of apparatus. Arrow points to radio-operated call light.

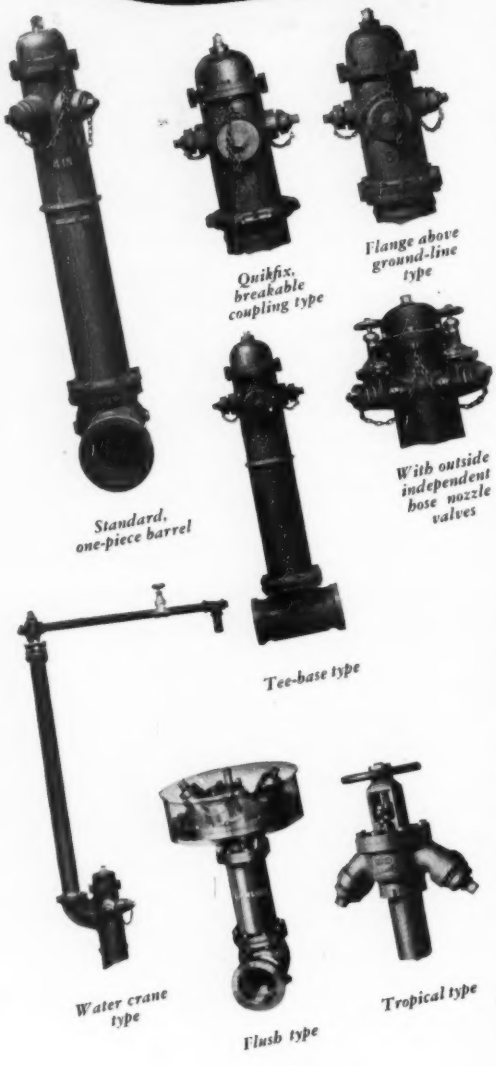
You can put your confidence in—

GENERAL ELECTRIC

TRADE DARLING MARK

HYDRANTS

...many types and sizes but only one high standard of performance!



Standard, one-piece barrel

Quikfix, breakable coupling type

Flange above ground-line type

With outside independent hose nozzle valves

Tee-base type

Water crane type

Flush type

Tropical type

YES, there's a Darling hydrant that's just right for practically every known requirement. A few of the different types are shown here. All have one thing in common ... performance at its efficient, low-cost best!

Here's a point to bear in mind. The basic design features that pay off so well in Darling-equipped towns, are applied to all but one of the various Darling types. Many of the working parts are interchangeable . . . planned that way for the sake of user economy, simplified maintenance and low inventory.

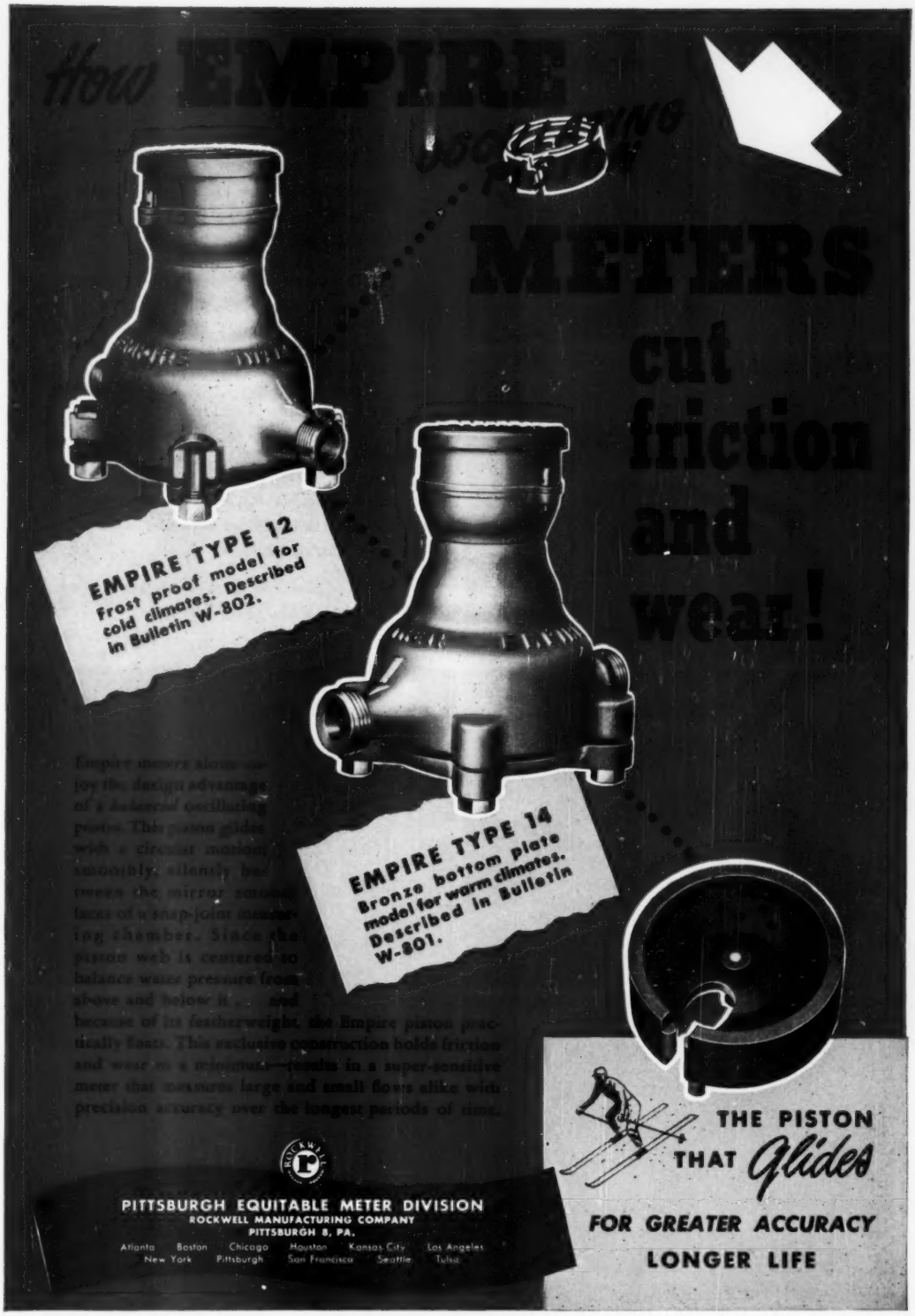
Do you have locations where frequent traffic damage is the rule? Are there other places where concealed flush-type hydrants would be ideal? Perhaps there are points where Darling's practical Tee-base type can save you money. And how about future fills and grade changes?

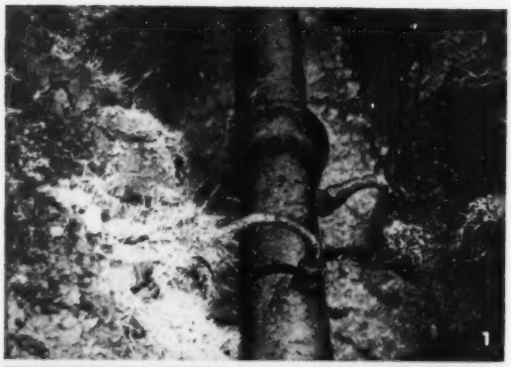
Why not let a Darling engineer explain how effectively, how *economically* your particular service conditions can be met with modern Darling hydrants? Or, if you prefer, we'll gladly send you Catalog 17M. It describes all the various features, types and sizes in complete detail.

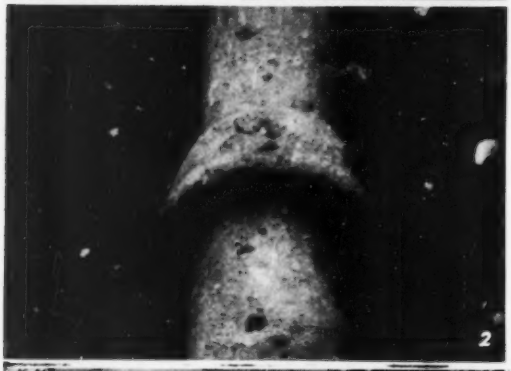
TRADE DARLING MARK

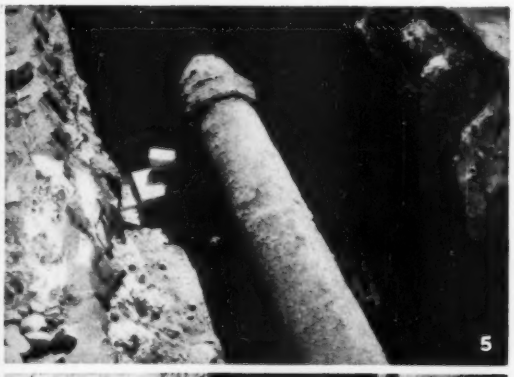
DARLING VALVE & MANUFACTURING CO.

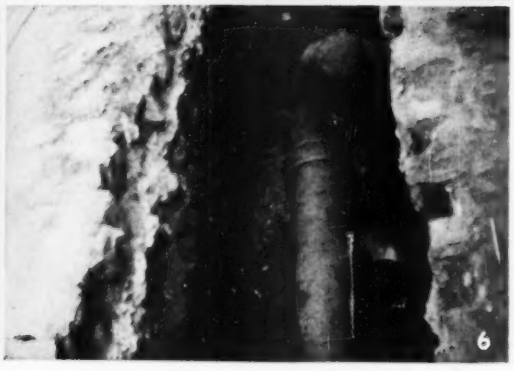
Williamsport 10, Pa.


How EMPIRE
METERS
cut friction and wear!
EMPIRE TYPE 12
Frost proof model for cold climates. Described in Bulletin W-802.
EMPIRE TYPE 14
Bronze bottom plate model for warm climates. Described in Bulletin W-801.
THE PISTON THAT Glides
FOR GREATER ACCURACY
LONGER LIFE
PITTSBURGH EQUITABLE METER DIVISION
ROCKWELL MANUFACTURING COMPANY
PITTSBURGH 8, PA.
Atlanta Boston Chicago Houston Kansas City Los Angeles
New York Pittsburgh San Francisco Seattle Tulsa









(1) This 101-year-old cast iron water main is serving Frederick, Maryland.

(2) Still in use after 118 years of service in the water supply system of St. Louis, Mo.

(3) This water main, installed 117 years ago, is still serving Richmond, Va.

(4) Lancaster, Pa. laid this cast iron water main 105 years ago. It is still serving.

(5) One of several cast iron water mains that have been serving New York City for more than a century.

(6) America's oldest cast iron water main, now in its 132nd year of service in Philadelphia.

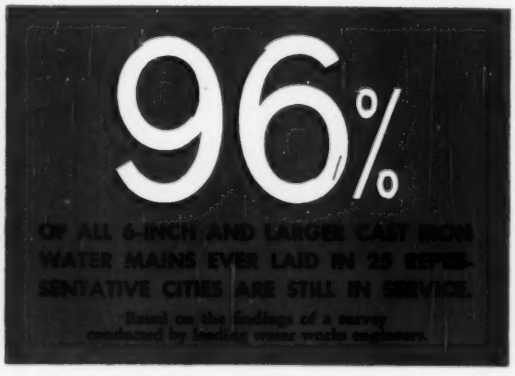
(7) This cast iron water main has been serving Boston for 120 years.

Going strong in their 2nd Century

About 30 of the older American cities have cast iron water or gas mains in service which were laid from 100 to 132 years ago. Most of these mains, on or after their 100th Anniversary, have been uncovered, inspected and photographed for the record. Seven of them—all water mains, are shown in this advertisement.

While it is well known that cast iron water mains in England, France and Germany have service records that approach three centuries, we, who make cast iron pipe, nevertheless get a thrill out of looking down into the trench at an uncovered section of a main that has been in service for 100 years—and so, we are told, do water works and gas engineers.

When one considers the radical changes which have occurred in a century in vehicular traffic, and the vast development of underground construction for the many utility services, the fact that these mains are now in their second century of service is all the more remarkable.


96%
OF ALL 6-INCH AND LARGER CAST IRON WATER MAINS EVER LAID IN 25 REPRESENTATIVE CITIES ARE STILL IN SERVICE.
Based on the findings of a survey conducted by leading water works engineers.

CAST IRON PIPE
SERVES FOR CENTURIES

Cast Iron Pipe Research Assn., T. F. Wolfe, Engr., Peoples Gas Bldg., Chicago 3.

34 YEARS Market Street
Savannah, Mo.

29 YEARS East Bridge Street
Oswego, N. Y.

27 YEARS Main Street
Cape Girardeau, Mo.

20 YEARS First Street
Aberdeen, Wash.

Old Streets Resurfaced with CONCRETE

Stand the Test of Time and Traffic

Resurfacing with concrete is a practical way to make durable new pavements of old worn surfaces. This renovation is economical and quickly achieved if the old pavement has a sound base that can be used as a foundation for the new concrete topping.

Concrete resurfacing is also the answer to the problem of strengthening old thin-slab pavements that are no longer adequate for present or anticipated traffic loads. These old, thin slabs often need widening, too. Both jobs can be done simultaneously—at a saving of time, money and inconvenience.

Streets resurfaced with concrete are smooth-riding, strong, durable and economical. Hundreds, like the few shown at the left, have given highly satisfactory service for twenty or thirty years and more. Such streets have all the advantages of new concrete pavements: uniformly high skid resistance, wet or dry; low maintenance cost; greater safety at night due to concrete's light reflectance—highest of all pavement surfaces.

Write today for a free copy of a new illustrated bulletin, *"Concrete Resurfacing for Old Pavements,"* which describes many resurfacing projects and contains valuable design data. This booklet is distributed only in the United States and Canada.

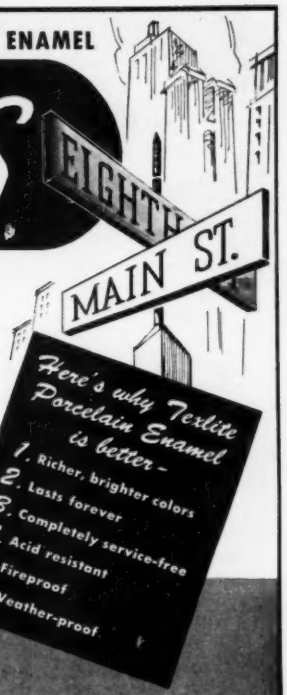
PORTLAND CEMENT ASSOCIATION

Dept. 42-4, 33 W. Grand Ave.. Chicago 10, Ill.

A national organization to improve and extend the uses of portland cement and concrete . . . through scientific research and engineering field work

CUT MAINTENANCE COSTS WITH TEXLITE PORCELAIN ENAMEL

STREET SIGNS



Texlite's experience in producing porcelain enamel street signs dates back to 1930. Thousands have been erected in the major cities and towns across the nation. Their clean-cut, distinctive appearance after years of service is evidence of their superior quality . . . and the savings in maintenance costs will prove to you that they're the most economical markers to use. Quick delivery — any colors, any lettering, any size, any quantity — order yours today!

TEXLITE INC.

"Largest Factory of its kind in the Nation"

Manufacturers of

PORCELAIN ENAMEL PRODUCTS

General Office: 2908 Factory St., Dallas, Texas ✦ Branch Offices: 330 Fifth Ave., New York 18; 320 West Ridg., Houston, Texas

This Fleet starts instantly with KIM Hotstart

REG. U.S. PAT. OFF.

Engine Pre-heater

Trucks of Spokane grocery fleet with KIM Hotstarts connected to electric circuit.

Instant starting; no warm up time; no excessive use of the choke; no winter damage to cold engines—that is what KIM Hotstart means to the fleet shown here.

When the truck has finished its run the driver plugs the KIM Hotstart into the electric circuit. Controlled percolator action draws cold water from the engine, heats it, and circulates it back through the engine which remains warm.

Battery life is lengthened. Terminal heating costs are lowered. Engine wear and depreciation is cut to a minimum.

There is a model of KIM Hotstart to fit your trucks, tractors or stationary engines, both diesel and gas.

WRITE FOR LITERATURE

To learn how to avoid winter damage to your equipment, fill in and mail the coupon. You will receive illustrated literature showing operation of the KIM Hotstart, and the name of your local dealer who will gladly demonstrate it for you.

KIM HOTSTART MANUFACTURING CO.
West 917 Broadway, Spokane 11, Wash.

Please send literature, prices and name of local dealer.

Name_____

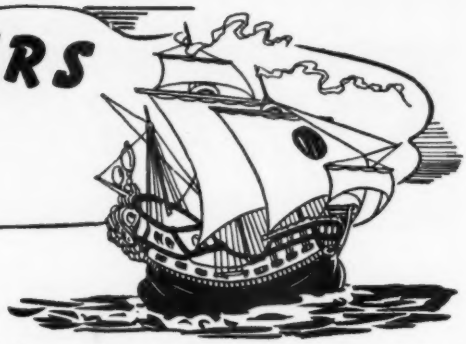
Company_____

Address_____

City_____

Zone_____ State_____

TRAIL BLAZERS
1492-1949



Chris lived *dangerously* . . . traveling uncharted routes. Today . . . with Miro-Flex signs on the job . . . travelers find their way *easily* . . . *safely*. Night or day, good signs, well placed, are the nemesis of traffic trouble on streets and highways. Motorists respect the complete Miro-Flex sign line. Plain . . . embossed . . . reflectorized with glass or Stimsonite buttons . . . or Scotchlite.* Standard or specials. . . . *Write for catalog.*

* TMR-MM Co. 2-49

MANUFACTURED BY

MIRO-FLEX CO., INC.

1824 EAST SECOND STREET • WICHITA, KANSAS

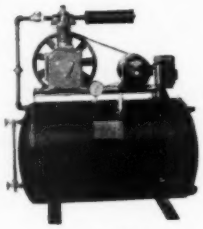
No. IV-APCO

APCO-V-APCO PRIMERS

FOR CENTRIFUGAL PUMPS
AUTOMATIC POWER OR TANK PRIMERS
SINGLE OR DUPLEX UNITS
DUAL DRIVE WITH GASOLINE ENGINE
ALL UNITS ENTIRELY AUTOMATIC

AIR RELEASE VALVES

FOR VENTING AIR OR GASES
17 TYPES



No. 2V-APCO

VALVE AND PRIMER CORPORATION 127 NORTH DEARBORN ST., CHICAGO, ILL.

AQUA VALVE BOX LOCATOR

Master of the Toughest Location Problems!

Finds hidden boxes in half the time. Instant top-view reading, no stooping. Guaranteed in snow, ice, any paving!

$29.50 F.O.B. CIN. O

Complete with leather case and strap.

Send no money for 15 day FREE TRIAL!

AQUA
Survey & Instrument Co.
2513 LESLIE AVE., NORWOOD
CINCINNATI 12, OHIO

"GUNITE" CONCRETE

(Since 1915)

SPECIALISTS IN CEMENT GUN WORK

RESERVOIR LININGS (NEW AND OLD) • CONCRETE AND MASONRY REPAIRS • STEEL ENCASEMENT • FIREPROOFING • STEEL COAL BUNKER, STACK, HOPPER, AND PLATE LINING • SEWER LINING AND REPAIRING • CANAL, DITCH, AND DRAIN LINING.

GUNITE CONCRETE & CONST. CO.
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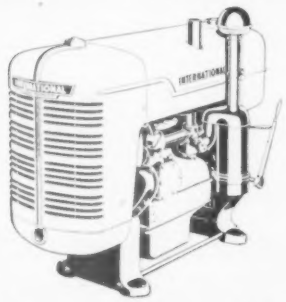
POWER and HEAT

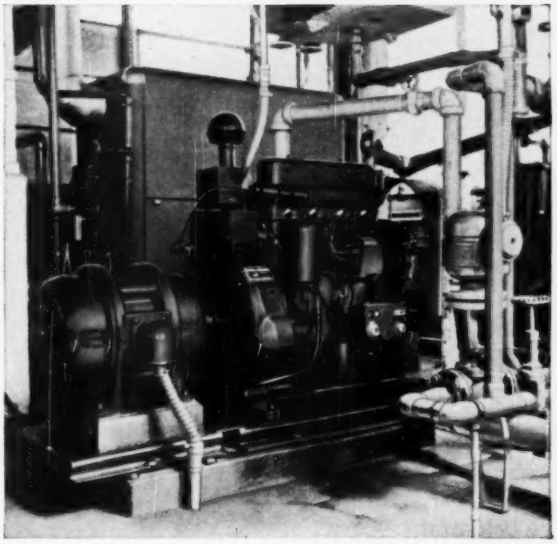
FOR LESS THAN 7¢ PER HOUR



The International U-4 Power Unit, an efficient, economical 31½ horsepower engine, can be easily adapted to burn gas, distillate or gasoline. Like all International engines, the U-4 has highly efficient combustion, getting maximum power from minimum fuel.

For real, money-saving, power installations, your best bet is an International Power Unit. You'll find that it will pay real dividends to check your power requirements with your International Industrial Power Distributor or Dealer. He will help you choose the right International Power Unit, either Diesel or gas, to suit your power needs.

There are dozens of municipal installations such as pumping stations, standby electric power generators, sewage disposal plants—where International Power Units are the right answer to the power problem. It's wise to remember, wherever you need an engine, you need an International.



This International U-4 engine operates on waste sewage gas. The exhaust heats water for a sewage treatment process while the attached generator supplies electric power to drive sludge pumps and other power applications. The engine cooling system is connected to heat exchangers which heat water, and the building in winter. Active hourly operating cost, including maintenance, depreciation, lubrication and electric standby service, is only $0.0639.

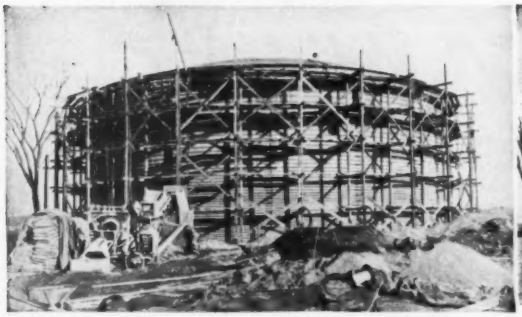
INTERNATIONAL HARVESTER COMPANY
CHICAGO

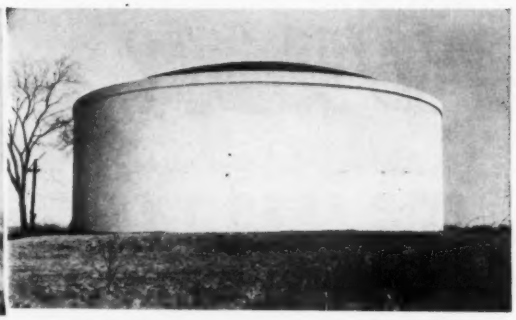
Tune in James Melton on "Harvest of Stars" CBS Wednesday evenings

Standardize on Power that Pays

INTERNATIONAL
INDUSTRIAL POWER

CRAWLER TRACTORS
WHEEL TRACTORS
DIESEL ENGINES
POWER UNITS





YOU DON'T HAVE TO WAIT FOR A PRESTRESSED TANK!

A watertight, properly designed "Gunite" concrete tank can be built quickly and economically by our organization using local labor and materials.

Photograph at left, above, shows prestressed bars in place, ready to receive "Gunite." Beside it is the finished tank, built to last for years with lowest maintenance costs.

Now is the time to give consideration to other repairs for this year. We repair all types of disintegrating concrete structures such as dams, reservoirs, sewage disposal plants, etc. Our engineers will gladly inspect your facilities and make recommendations for permanent, economical repairs. No obligation, of course.

Write our nearest office for complete 50-page catalog and details.

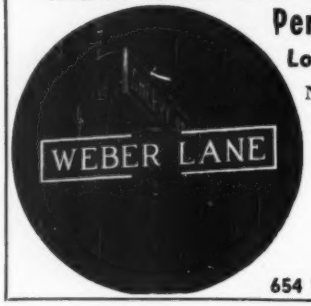
PRESSURE CONCRETE COMPANY CPC "GUNITE" CONTRACTORS AND ENGINEERS

193 EMMET ST., NEWARK 5, N. J. • 33 N. LA SALLE ST., CHICAGO 2, ILL. • S. COURT ST., FLORENCE, ALA.

NIGHT *and* DAY VISIBILITY *with* SUBURBAN STREET MARKER

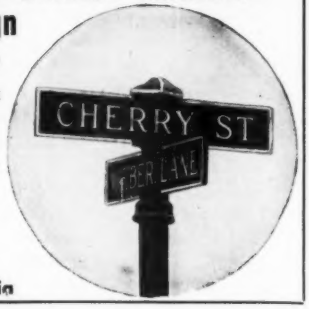
Permanent Aluminum Street Sign

Low Cost **No Maintenance**



No effort has been spared to give you the best street sign ever offered: highly visible by night or day, attractive, simple to install, built to last *years and years.*

Write for further data or for Complete Catalog #20-5.



LAKE SHORE MARKERS

Division of Lake Shore Pattern Works

654 W. 19th Street **Erie, Pennsylvania**

TABLETS OF ENDURING BEAUTY

Mark buildings . . . record deeds and heroes . . . let NEWMAN PLAQUES of bronze or aluminum emblazon names in immortal beauty. NEWMAN has been famous internationally since 1882 for tablet perfection.

Write Today *For Tablet Catalog. Absolutely no obligation.*

OUR 67th YEAR

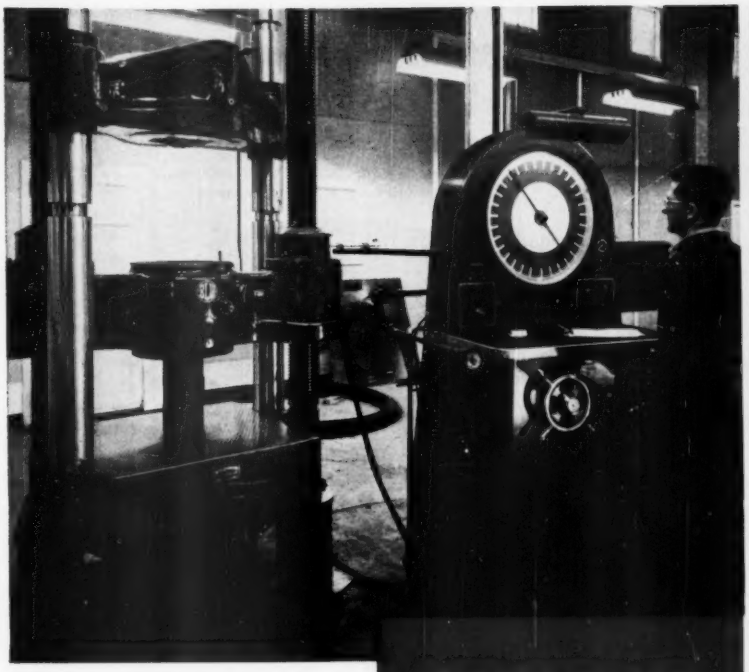
NEWMAN BROTHERS, Inc.

659-665 W. 4th St. **Cincinnati 3, O.**

SANITATION ENGINEER
seeks position

Graduate Engineer with excellent background in Public Relations, Sanitation, Roadway Maintenance both in United States and abroad desires position. Specializing in all phases of waste collection, waste disposal and street cleaning. Will travel anywhere. Write for complete resume to:

Box #306
THE AMERICAN CITY
470 Fourth Avenue
New York 16, N. Y.



ABOVE: Calibrating Testing Equipment at the Wharton Laboratory

ABOVE LEFT: Testing Concrete Cylinder for Compressive Strength

CONSTANT TESTING assures top quality

All materials used in the manufacture of Lock Joint Prestressed Concrete Cylinder Pipe are carefully tested to assure their uniformly high quality.

In Lock Joint's Laboratory at Wharton, New Jersey, accurately calibrated testing equipment checks the physical properties of all materials which constitute the finished product and test the physical characteristics of the completed pipe.

This constant check on all materials used in Lock Joint Pressure Pipe assures the top quality and long, useful service ot the finished product.

SCOPE OF SERVICES

Lock Joint Pipe Company specializes in the manufacture and installation of Reinforced Concrete Pressure Pipe for Water Supply and Distribution Mains in a wide range of diameters as well as Concrete Pipe of all types for Sanitary Sewers, Storm Drains, Culverts and Subaqueous Lines.

LOCK JOINT PIPE COMPANY

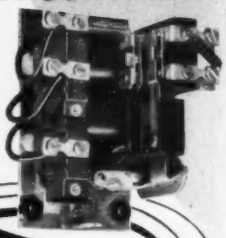
P.O. Box 269, East Orange, N.J.

Pressure Pipe Plants:
Wharton, N. J. • Turner, Kan.

BRANCH OFFICES:

Cheyenne, Wyo. . . . . Denver, Colo.
Kansas City, Mo. . . . . Joplin, Mo.
Valley Park, Mo. . . . . Chicago, Ill.
Rock Island, Ill. . . . . Wichita, Kan.
Kenilworth, N. J. . . . Hartford, Conn.

All Electric-Floatless
LIQUID LEVEL CONTROLS



Positive! Dependable! Economical! No floats! No vacuum tubes! No moving parts in liquid. Unaffected by acids, caustics, pressures or temperatures.

WRITE FOR COMPLETE CATALOG

B/W CONTROLLER CORPORATION

2106 E. MAPLE ROAD BIRMINGHAM, MICH

FIRST IN THE FLOATLESS CONTROL FIELD

Patch pavements in winter

Heated plate impacts, finishes and cures hot or cold materials — ready for traffic.

No roller, no water, no waiting.

Completes 60 to 80 sq. ft. per minute. Works flush to curbs, rails, manholes.

Fast—60 to 80 Sq. Ft. a minute

Works where a roller can't

Because it works by *impaction* — hitting 1700 to 2000 blows per minute of more than 700 foot pounds impact with its heated plate — the Wayer Impactor puts down pavement patches winter or summer, smoothly finished, thoroly cured, sealed tight and ready for immediate use.

Any bituminous material or dry concrete base for patching roads, streets, parking lots, etc., paving walks and floors. Also tamps earth. Easily portable. Big cost saving. Send for Bulletin 25-8.

WAYER IMPACTOR

Wayer Impactor, Inc., 12 N. Third Street, Columbus 15, Ohio

Newly Improved OK CHAMPION POWER SEWER CLEANER

DON'T LOSE Sewer Capacity

Clear your sewer lines regularly. Keep up full carrying capacity and you save money—in lower maintenance cost and avoiding costly backwash. Order OK Champion Power Sewer Cleaner equipment and your men remove roots, dirt and other obstructions from any storm or sanitary sewer in ONE operation. All men work above street level.

OK Champion cleaners are regularly clearing sewers all over the world. New improvements make them better than ever. Send for literature.

CHAMPION CORPORATION
Hammond, Indiana

GET FULL FACTS NOW!

CHAMPION CORPORATION, 4716 Sheffield Ave., Hammond, Ind. Please send information on how the Improved OK Champion Power Sewer Cleaner cuts sewer cleaning costs.

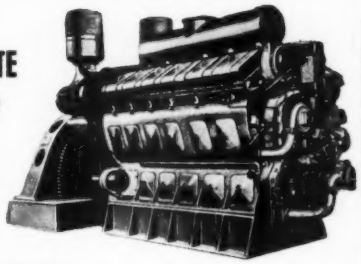
NAME..... TITLE.....

ADDRESS.....

DIESEL GENERATOR SETS

FOR

IMMEDIATE DELIVERY



UNIT CAPACITIES
10 TO 1420 KVA

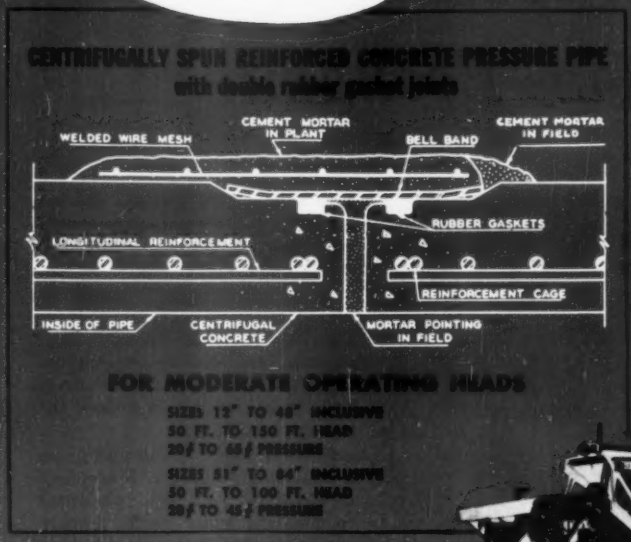
A.C. 50 AND 60 CYCLES
ANY VOLTAGE

Write or wire today for bulletins and complete information regarding these fine fully guaranteed DIESEL ENGINE GENERATING UNITS.

AG SCHOONMAKER CO INC.
Power Division
50 CHURCH STREET NEW YORK 7, NEW YORK

5 BASIC REASONS

why this superior pipe helps reduce the cost of delivered water...



1 *LOW FIRST COST*

2 *EASE OF INSTALLATION*

3 *SUSTAINED MAXIMUM PERFORMANCE*

4 *FREEDOM FROM MAINTENANCE*

5 *PERMANENCE*

The advantages of centrifugally spun reinforced concrete pressure pipe for moderate operating heads (generally under 150') have become well established in this country during the past twenty-five years. High initial and sustained carrying capacity, permanence, and economy are some of the proven characteristics of Hume Centrifugal Concrete Pressure Pipe.

In recent years, development by this company of the Double Rubber Gasket Joint for centrifugally spun pipe has greatly increased its versatility and adaptability. It is proving outstandingly successful in a wide variety of installations throughout the West.

This joint is another example of American's ingenuity and skill in the development of better products for water supply lines. Further information is available upon request.

American PIPE AND CONSTRUCTION CO.

Concrete Pipe for Main Water Supply Lines, Storm and Sanitary Sewers, Subaqueous Pipe Lines.

P. O. Box 3428, Terminal Annex • Los Angeles 54, California

QUALITY PIPE LINE PRODUCTS MANUFACTURED AND INSTALLED BY AMERICAN INCLUDE HUME CENTRIFUGAL CONCRETE PRESSURE PIPE, AMERICAN CONCRETE CYLINDER PIPE, PRESTRESSED LOCK JOINT CONCRETE CYLINDER PIPE, LOCK JOINT CONCRETE CYLINDER PIPE.

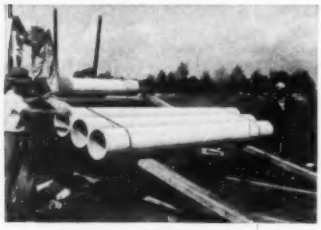
Main Offices and Plant — 4635 Firestone Boulevard, South Gate, California — District Offices and Plants — Oakland — San Diego — Portland, Oregon

Engineering Facts about
Johns-Manville TRANSITE PRESSURE PIPE
Installation Economies

SINCE the cost of installing the transmission and distribution lines may represent as much as 30 per cent of the total original investment in a water supply system, it is important that these costs be kept to a minimum. Transite* Pressure Pipe offers a combination of installation advantages which have resulted in substantial economies wherever this pipe has been used.

These installation economies start when a Transite Pipe shipment is received. Because Transite is relatively light in weight, unloading and all subsequent handling operations are simplified. More footage can be handled per truckload, trucking costs are lower, and distribution on the job site is easier and more quickly accomplished.

Mechanical handling equipment is not usually necessary except where the larger diameters of pipe are used. The sections of pipe are easily lowered into the trench, either by hand or with the aid of rope slings.



All but the larger diameters of Transite Pipe are unloaded without mechanical equipment and lowered into the trench with slings. Lightness, ease of handling and ready workability contribute to Transite Pressure Pipe's many desirable installation advantages.

In this Transite installation at Long Beach, California, the pipe was laid as fast as the trench was opened. Not more than two newly laid lengths of pipe were ever exposed at one time.

Transite's factory-made Simplex Couplings provide a number of additional installation economies.

Consisting of only three simple parts, this coupling is rapidly assembled to provide a tight, yet flexible joint. A coupling puller is the only tool required for assembly. So rapidly can the pipe be assembled in the trench that the same foreman often supervises both excavation and installation. And this speed of assembly means that trenches need be open only a minimum length of time.

Each joint, moreover, is readily checked for correct assembly as the pipe is laid. This provides advance assurance that the line will meet final test requirements and is a further help in expediting completion of the job.

The flexibility of the Transite Simplex Coupling affords another advantage. It permits deflections up to 5° at each joint, thereby allowing the pipe to be laid around wide curves and across hilly terrain without the use of special fittings.

The workability of this pipe is also a contributing factor to its economy of installation. Transite is adapted to standard water works practice and is readily connected to valves, fittings, hydrants, etc. It is tapped and drilled with standard equipment. The threads are sharp, clean and strong—connections are tight and lasting. Conventional methods are used for making large service connections.

For further details about Transite Pressure Pipe, write Johns-Manville, Box 290, New York 16, N. Y.

Assembling Simplex Couplings is a quick operation. And each joint can be easily checked for proper assembly when it is made, providing advance assurance that the line will meet final test requirements.

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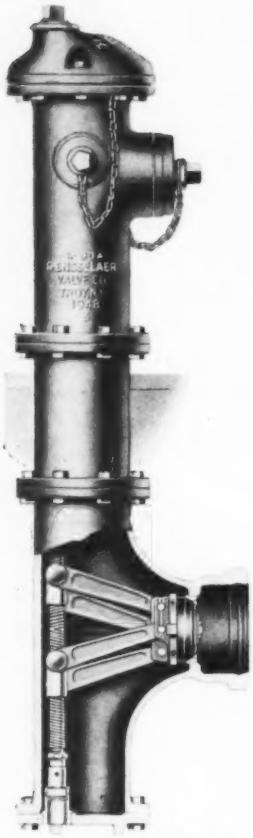

HYDRANT CASE CUT AWAY showing steel forgings bearing against case, locking main valve shut

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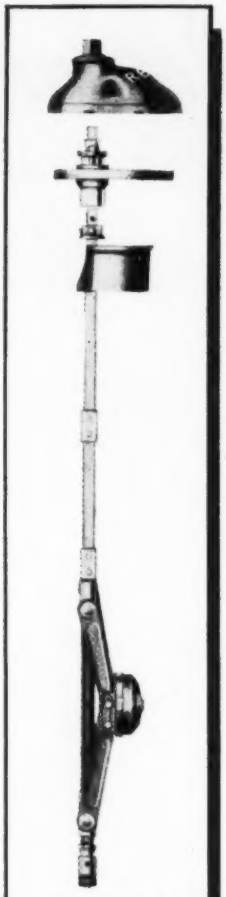

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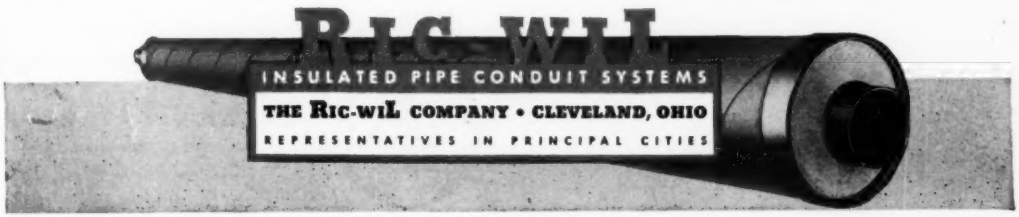

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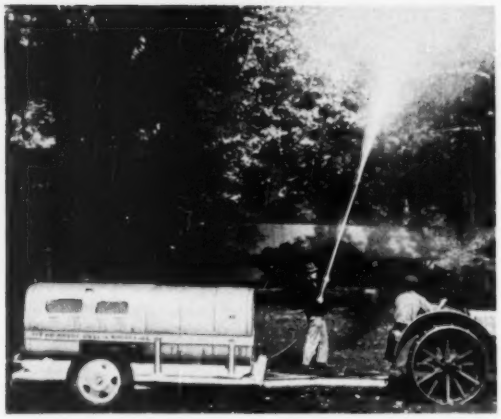

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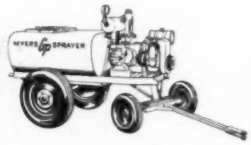

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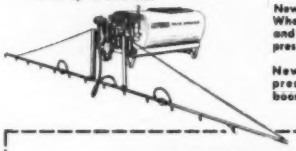

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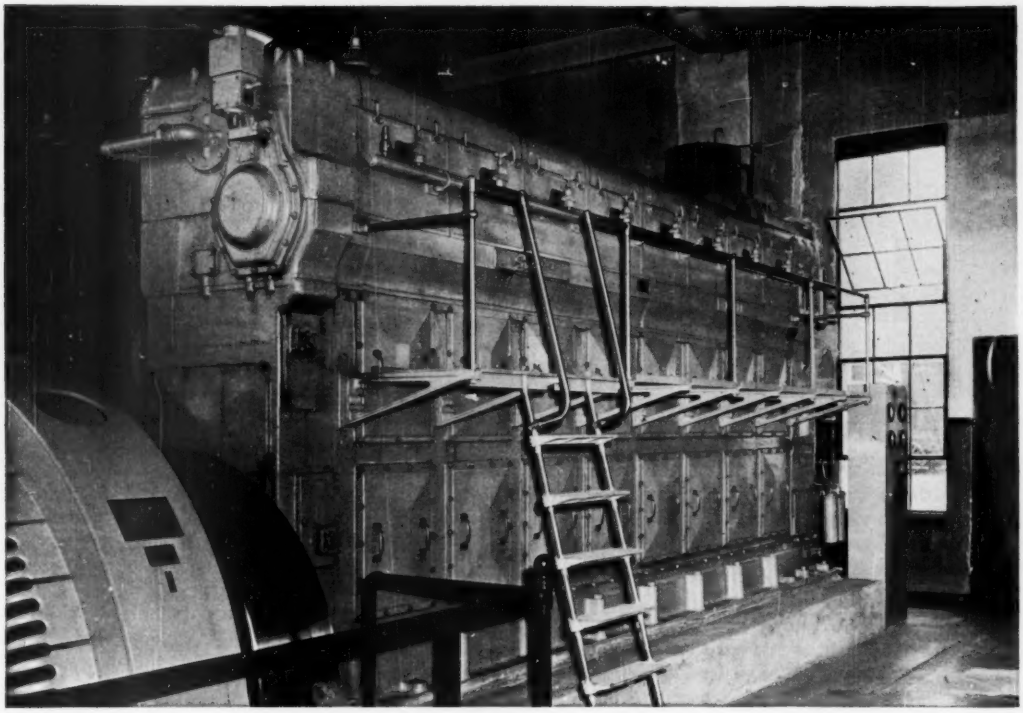

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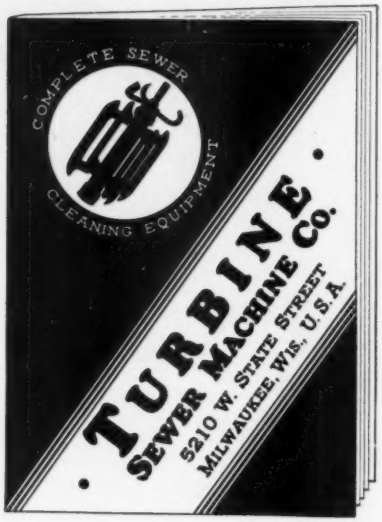

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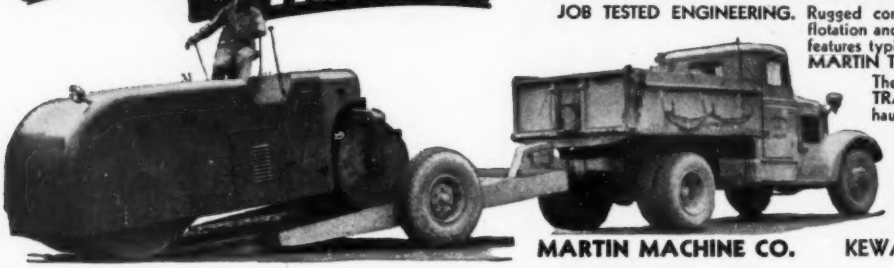

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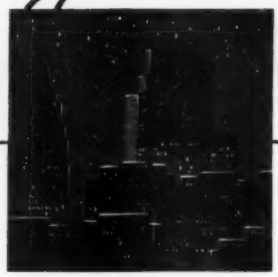

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FEBRUARY 1949
Volume LXIV No. 2
The American City

SESQUICENTENNIAL WASHINGTON:

What Should Our Capital City Be?

THREE points of view on the future of the nation's capital city were presented at a meeting attended by more than 700 persons, sponsored by the Washington Metropolitan Chapter of the American Institute of Architects, and held in the United States Chamber of Commerce auditorium on January 15. The symposium was entitled "Sesquicentennial Washington: What Should Our Capital City Be?" Speakers included Frederick Gutheim, special writer for the *New York Herald Tribune* on planning and housing affairs; Lewis Mumford, well-known author and lecturer on city and regional planning, and Hugh R. Pomeroy, director of the Westchester County (N. Y.) Department of Planning.

One response to the talks that were made and the subsequent lively discussion at the meeting was expressed by an editorial in the *Washington Evening Star* on January 18. This declared: "It is time that Americans everywhere who take pride in their capital city insist that the most skilled men in the country bring their talents to bear in working out a wise solution." It also urged that Congress provide funds for the widespread distribution and study of the Washington plan and for its full discussion by the best minds that can be assembled.

That the L'Enfant plan for the District of Columbia is not valid for the future was the opinion stated by Mr. Mumford, who urged the collection of taxes from the country at large for Washington's rebuilding. The city should not be organized as a single mass but as a "series of cells," each with its own functions, he said. Mr. Mumford also pointed out the problems caused by the Mall, which separates the city where it needs to be united, and noted the lack of adequate green areas around the central city to set it off from adjacent communities. He proposed the creation of a circle of six, eight or ten towns around the city for government, industry, and residences in order to leave space for functions that should be centralized, or of six to ten "sub-Washingtons," satellite capitals of regions of the country, as alternatives for Washington's development.

Mr. Pomeroy emphasized the regional aspects of Washington's planning in his talk on "Putting Our Plans to Work." Mr. Pomeroy said, "A plan for the National Capital cannot be a plan for a city, it must be a plan for a region. Government procedures must be devised beyond those now available."

This theme was also stressed by Mr. Gutheim, who reviewed the first 150 years of Washington's growth. Some excerpts from his talk follow:

From the standpoint of the planners of the Federal City, the most important fact is that an immense degree of administrative decentralization is possible, and with corresponding gains in efficiency. Increasingly, I expect this to have its effect on the development of the City of Washington. The pattern this will take will not be a wholesale removal of bureaus to other cities, as we were obliged to do when the last war commenced, to make room for mushrooming war agencies. It will be a steady growth of tendencies already visible in all large government agencies to decentralize or regionalize their own activities. We know now there is no waste like the waste of over-centralization, and a good many people today, including some who got elected, are looking to Washington critically with this in their minds.

If the city does not increase in population as rapidly as some expect, it should increase very much more rapidly in area.

The city is stretching out long tentacles into the countryside. We have been reaching up into the Potomac Valley for our water supply, and eyeing it speculatively for some of our future hydroelectric power. The Potomac Valley Commission has been established with one of its main functions the preservation of the river from pollution. The Washington Suburban Sanitary Commission long ago escaped from the central city. We look beyond the city's present built-up area for our recreation. We determine the use of agricultural land for a hundred miles about: it is our milk shed, our truck garden, our fishery and oyster bed, our playground. Increasingly the valley works for the city.

Even the agencies of the Federal government are distributing themselves through this spreading metropolitan region. . . . What does this show? Apart from the tendency to residential decentralization there is a powerful decentralization of employment as well.

Our old conception of the tightly formed core of the city, as expressed in the Federal Triangle, has been smashed—by the automobile. We may not come to parking on the Mall—at least for another year or two—but it is worth pointing out that hardly one of the new permanent federal buildings erected in the last decade has been built where the planners of "the city beautiful" wanted it to be built.

The potential Federal City of tomorrow can stretch further than from the Eastern Branch to the Conococheague. It will be a gangling super-city of many separate individual parts, the articulation of each of which, and their organization into one whole is the planner's job. There is room here for "new towns" and for a healthy

(*Continued on Page* 145)

If this city of ours is to lead, as well as to develop its own potentialities, it must make a contribution to urban life in the United States of greater importance even than L'Enfant in 1791, or the McMillan Commission in 1902. It must make its own distinctive contribution toward solving problems of metropolitan regional planning that now perplex more than a score of our large cities. It must pioneer new forms of metropolitan regional government. It must find new relationships between the Federal Government and the big cities. It must explore fresh and fascinating patterns of city life and work that are only now becoming possible. A new urban standard will be set that meets our needs and capabilities and is of our time. These are our hopes, and perhaps our destiny. F. G.

One of the overpasses that form part of this new Allegheny County improvement.

This is how the 36-inch clay-pipe culvert looks. Two lines of 6-inch clay perforated pipe will flank encasement, protecting against seepage.

Cradled Tile Culverts

Allegheny County's Expressway runs over very rough terrain with many underground springs. Special underdrainage construction is required

By S. M. MADANCY
Road Design Engineer
Department of Public Works
Allegheny County, Pa.

IN constructing another link in its new system of superhighways, the Commissioners of Allegheny County, of which Pittsburgh is the county seat, found it necessary to build cross-drain culverts at a rate of more than 10 to the mile. The sawtooth terrain of sharp gullies and peaks demanded 27 culverts for the 2.58-mile section of highway leading from Routes 30 and 22 to the Dinner Bell Inn, where it joins Section 2, which extends to the Greater Pittsburgh Airport. The culverts ranged in size from 18 to 72 inches and in length from 100 to 692 feet; in design from encased vitrified clay pipe to reinforced concrete box. Section 2 is approximately 2.3 miles in length. The two sections, totaling nearly 5 miles in length, will cost approximately $4,500,000, or nearly a million dollars a mile.

Grading and drainage for the final section of this new parkway is substantially complete. The project, started in April, forms the groundwork for a four-lane divided superhighway from the intersection of Routes 30 and 22, 2.58 miles over extremely corrugated terrain. This section will join a section of 2.3 miles already graded. The new construction includes a clover-leaf intersection with the Cliff Mine and Coreopolis Road and a bridge of 300-foot length.

As mentioned previously, the terrain over which the road will run is interlaced with deep gullies and sharp inclines caused by the thousands of underground springs which dot the area. Over a period of years these stream beds furnished the virgin land with a natural drainage system.

To maintain the normal drainage and to prevent road washouts, culverts were provided wherever the roadbed spanned one of the natural gullies. The culverts ranged in size from 18 to 72 inches, depending on the size of the stream to be carried.

Allegheny County specifications require that culverts of this nature be encased as further protection against shifting and subsequent roadway failure. As a further precaution the encasements were protected from unusual seepage by vitrified clay perforated drains running along both sides.

Construction of Culverts

Most of the culverts were constructed simply by hoeing or clamming out the stream bed until solid ground was reached, and then the pipe was laid in place and jointed. When the pipe was in place, forms for the concrete encasement went down. After the forms were removed, lines of vitrified clay perforated pipe were strung alongside to collect and dispense the seepage water which would normally settle around the encasement. The perforated pipe was filled over with a coarse gravel. Earth removed from the higher cuts was used as embankment.

Extra-Strength Clay Pipe Used for 36-Inch Culverts

Extra-strength vitrified clay pipe was used in most culverts up to 36 inches in diameter. These included one 15-inch, eleven 18-inch, five 24-inch, three 30-inch and one 36-inch culverts. Seven other culverts, including a box, were installed. These included a 72-inch, 400-foot culvert (the largest in diameter); and a 692-foot, 60-inch culvert (the longest). Another pair of 60-inch culverts, a 48-inch, and a 42-inch went into the job.

The steepest culvert is a 224-foot, 36-inch clay pipeline that drops 25.76 feet, or an 11.50% grade.

The box culvert is 250 feet in length and has a 16-foot span. Because of the

heavy weight it will bear, 180 tons of steel bar reinforcements were used in its construction. It was poured in 10 sections of 25 feet each. Alternate sections were poured at one time. Upon completion it was coated with two coats of waterproofing. As on all other large culverts on the job, a line of perforated clay pipe was strung along each side.

The over-all project required the cutting out of 1,072,000 cubic yards of earth. The largest single cut was of 226,000 cubic yards. Frequent outcroppings of coal, shale, and hard rock slowed grading progress perceptibly.

The cutting unearthed several small underground springs which had to be harnessed to prevent them from causing future roadway failure. Wherever a stream was encountered, it was directed through a 6-inch clay perforated drain which emptied into a culvert.

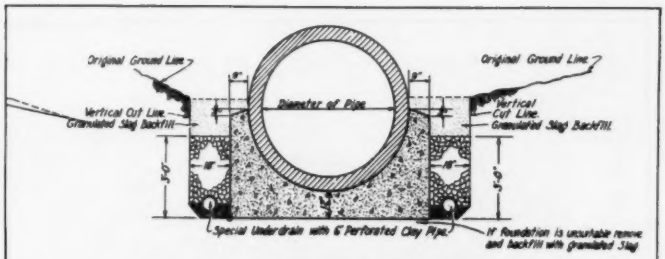
The finished roadway paving will be 54 feet wide, there being one 12 feet and one 13 feet in each direction, with a 4-foot divisor strip. Deceleration lanes at the cloverleaf widen the road in some places to almost 90 feet. The surmountable divisor has sloping curbs of white cement mortar so formed as to reflect back the headlamp beams. Between the curbs the divisor is paved with concrete.

Roadbed Drained

The roadbed itself will be drained with a line of 6-inch vitrified clay perforated pipe running along each side of the highway directly under the curbing. These lines empty into 15-inch pipes which run beneath the highway at regular intervals. Inlets on the high side of the road empty into 15-inch clay lines which run into inlets set in the center of the road. These inlets empty into culverts. Because of the height of the finished roadway, some of the manholes are 120 feet in depth.

The entire drainage system requires approximately 21,000 feet of vitrified clay pipe and 2,000 feet of concrete pipe. The expressway, called the Airport Parkway, leads to a $25,000,000 airport project which will ultimately give the Pittsburgh area one of the nation's finest air terminals.

The contract for the drainage and grading was awarded to Latrobe Road Construction, Inc., for $1,186,431.50. The grading was sub-contracted to the Harrison Construction Company of Pittsburgh. It is estimated that the grading and drainage will be complete by the end of January 1948. The contract for the substructure and the superstructure of the bridges over Montour Run and the Montour Railroad, at the intersection with Cliff Mine and Coreopolis Road, was awarded to Sanctis Construction, Inc., for $888,471.10. This work was started early in the year and will be completed by the end of January 1949. A contract for the handrailing has been awarded to the Fort Pitt Malleable Iron Company for $20,771.70 and a contract has been awarded to the Devlin Electric Company for a complete system of Mercury Vapor Highway Lighting, flashing, warning lights, conduits, poles, etc., in the amount of $57,568.14. Early in 1950 bids will be advertised for the paving, landscaping, and other work required to complete Section 1 of the project, which is to be read for traffic in the summer of 1949.


Original Ground Line
Original Ground Line
Vertical Cut Line
Granulated Slag Backfill
Diameter of Pipe
Vertical Cut Line
Granulated Slag Backfill
Special Underdrain with 6" Perforated Clay Pipe.
If Foundation is unsuitable remove and backfill with granulated Slag

DETAILS OF SPECIAL CONCRETE CRADLE FOR 36" & 60" PIPE CULVERT

This drawing shows the general method of cradling extra-strength tile culverts.

Future plans call for a super cloverleaf at the intersection of U. S. Routes 30 and 22, Campbell Run Road and the Parkway. The cloverleaf will eliminate a dangerous intersection and will separate Route 30 from Route 22. Route 30 will be directed down the new Parkway, cutting across from the airport to the Town of Clinton where it will join the old Route 30. This will decrease considerably the heavy traffic over the highway which presently carries both U. S. routes.

Section 1 of the Airport Parkway has been designed and is being constructed under the supervision of the Allegheny County Department of Works, for which the writer is Road Design Engineer. The Director of the Department is Levi Bird Duff, and Charles F. Houlihan is the Chief Engineer. Ernest Tessitor is Bridge Design Engineer, and field supervision is in charge of Joseph W. Carlson, Assistant Chief Engineer. The consulting-engineering firms of Parsons, Brinckerhoff, Hall and Macdonald, of New York City assisted the department in the preparation of plans for the bridges at the cloverleaf. The Works Department reports directly to the County Commissioners: John J. Kane, Chairman; George Rankin, Jr., and Ernest Hillman.

Chicago Takes Steps to Clear Redevelopment Area

CHICAGO'S Land Clearance Commission has requested the approval of the Chicago City Council to acquire a 20-block blighted area located on the near South Side as the first step in getting Chicago's slum-clearance program under way. At a future time the Land Clearance Commission will request the Council to approve a redevelopment plan for the area and the terms of sale to private developers.

In his statement announcing the program, Mayor Martin H. Kennelly said:

"It is gratifying to note that the Commission has already received two separate offers for rebuilding different portions of the area. One offer from the New York Life Insurance Company, to construct 1,400 apartment units, was announced last summer.

"A second offer, recently made by a group of three Chicago Negro insurance companies to build 50 homes to be sold to individuals, with first preference given to present residents of the area, bears evidence to the fact that Negro capital is ready to participate in the program. These companies are the Supreme Liberty Life Insurance Company, Jackson Mutual Life Insurance Company and the Metropolitan Mutual Assurance Company.

"The New York Life Insurance Company has agreed that, in view of the special housing needs now existing on the South Side and the present racial composition of the area included in this project, first preference for initial occupancy of the houses shall be given to Negro families, except that persons of other races now residing in this general vicinity will likewise be accommodated if they also meet the Company's established standard of earning capacity, good character, and other qualities applied by management in the selection of tenants."

An orderly program of relocation for families to be displaced by the projects has been mapped, involving cooperation with the Housing Coordinator and the Chicago Housing Authority.

900,000 SHOPPERS WITHIN 30 MINUTES' DRIVE OF LIVINGSTON

5,000-CAR PARKING AREA • 70 STORES

1,500-SEAT THEATER • COST $7,000,000

A MAMMOTH NEW SHOPPING CENTER

LIVINGSTON, N. J., is looking forward to the breaking of ground in June to start the construction of a $7,000,000 regional shopping center which will have 70 stores with a parking area for 5,000 cars on a 60-acre tract. Livingston itself is a township with a population of only 10,000 people living within an area of 14 square miles. It is situated 8 miles from the center of Newark and borders a highly concentrated urban area.

Selection of this location for a regional shopping area resulted from the fact that the township has a very active and alert Planning Board. In 1944 the Township Committee was prevailed upon to appropriate money for the services of a planning consultant. One of the things proposed by Russell Van Nest Black, the consultant retained by the Board, was a site for the location of a main business center to provide for the Township's shopping requirements when its population should reach an expected maximum of 100,000.

The Board then tackled the problem of getting such a business center started. The existing population of the Township alone did not warrant investment for a large-scale project. On the other hand, if it should be necessary to wait until population increased, the land would not be available for such a center. Meanwhile the existing highway-strip-development of the business section would gradually increase, and the same old problem of where to park, and the slowing down of traffic on main arteries and others, would result.

How, then, could the Planning Board, which was charged with the responsibility of proposing ways and means of building a town to avoid mistakes of the past, overcome this situation? A ray of hope appeared in July 1947, when William H. Clark, Chairman of the Board, noticed an article in THE AMERICAN CITY concerning a business center about to be built in Beverly, Mass., which embodied all the features of the type of business center which the Planning Board visualized for Livingston.*

A letter was sent to Huston Rawls, president of National Suburban Centers, Inc., pointing out it would be difficult to find, so near such a heavy concentration of population, a site with open land available and required road facilities. Mr. Clark thought that perhaps the community's interests and those of the builders in obtaining a suitable location would match.

That is exactly what happened. Na-

* See "The North Shore Shopping Center," in THE AMERICAN CITY for July 1947, pages 124-125. National Suburban Centers, Inc., has also announced shopping centers similar in basic design for Framingham, Mass., and Paramus, N. J., as well as those in Beverly and Livingston. Four to six others are projected in the Northeast area. Among the nationally known consultants engaged for the planning of these centers are Kenneth Welch, store location and planning; Morris Ketchum, Jr., chief architect; Frederick J. Adams, chief site planner, and William W. Wurster, planning consultant.

Harrison, N. Y. (Westchester County), is one municipality which decided that it did not want such a shopping center within its boundaries. Although opinion among property owners was sharply divided, the Town Board refused on January 10 to approve an application for rezoning of a portion of a large estate in order to allow such a project.

tional Suburban Centers found out that Livingston was ideally situated as a location for a regional shopping center to serve approximately 900,000 people, and that road facilities and large enough tract of land on which to build a regional shopping center were available. The Township had found an organization with the facilities to build a shopping center even larger than was originally contemplated — a center which would increase Livingston's ratables considerably.

Business Men Approve

At first, the local business men looked at the project somewhat skeptically, but after weighing the situation, decided that a project of this sort, which would benefit the town, would also be a benefit to them. By properly introducing the project to the townspeople, it quickly received unanimous support. When the time was reached in December 1948 to pass an ordinance to re-zone the residential area for business, not a dissenting voice was heard.

The entire tract of land acquired is a 200-acre tract of virgin land surrounded by main roads. The 70 stores will be housed in wide-windowed two-story buildings on either side of a long landscaped mall.

Most of the store fronts are glass and have covered walls, on two levels, which extend around the mall, with about a dozen covered entrances from the parking space surrounding the buildings. At one end of the mall, dominating the whole center, will be a circular domed building housing a complete department store, not a branch store, of a nationally known firm. At the other end of the mall will be a 1,500-seat theatre of outstanding design which will be used by the various stores for fashion shows and other demonstrations prior to the two o'clock movie matinee.

Great Variety of Shops

In addition to the big department store, there will be at least two large, nationally known specialty stores. At least one other store in the center will compete with every department of the main store. There will be one big restaurant and several smaller eating places as well as banking facilities, a post office, beauty shops, barber shops, bus and cab terminals, bowling alleys, and a nursery for children.

About 10 acres of the property will be used for the store buildings and mall and some 50 acres for the huge parking area, which will handle 5,000 cars. The average walking distance from a parked car to any of the sheltered entrances will, under normal conditions, be less than 80 feet and at the maximum 200 feet.

The Center provides for complete separation of automobile traffic from pedestrians. All stores will front on the central mall which cars cannot enter. The shopping center will serve people living within a 30-minute driving distance from the center.

Of the 200 acres in the tract, 150 acres completely surrounding the shopping center will be developed in high-grade housing and in parks to protect both the community and the owners from uncontrolled and unplanned commercial development, which would encroach on or cheapen either the neighborhood or the quality of the shopping center.

Intensive Radio Coverage of Akron, Ohio, Area

By RAY J. MYERS, *Superintendent Police and Fire Signal System Akron, Ohio*

BY 1950 the City of Akron, Ohio, will have changed over completely to the modern frequencies of 152-156 megocycles for the Police Department. Cars other than police to be served on this frequency will be the Superintendent of Street Cleaning and his department's trucks, which clean up debris after accidents and storms and spread salt on ice in winter.

On this frequency, and licensed under us, are the two-way-equipped cars of the American District Telegraph Company. Goodyear Tire and Rubber Company operates two cruisers on our police frequency. The company, as well as the Firestone Rubber Company and other industries, monitor our station from their plant-protection offices. We also operate on zone frequencies — channels 2804, 2808 and 2812 on zone police — and interzone 5135, 5140, and 5195. Thus, when all wire facilities fail, we can in minutes obtain car-license checks or make contact with Columbus, Cleveland, Cincinnati, Dayton, Toledo, Youngstown, and all the state-highway patrol stations in Ohio.

Fire Radio in 30-40 Band

By July 1950, the Fire Department radio must move from its present 35,580 frequency to the new emergency-communications allocations. Long-range communication is necessary, as we cover these counties on a mutual-aid network and must protect our water supply. Not only is nearly all of our fire apparatus equipped with two-way radio, but so are the truck, repair, and hydrant-maintenance crews.

For a county-wide mutual-aid fire plan now being set up, it has been established that the 30-40, rather than the 152-mc band, is essential to adequate coverage. A fixed land station will be installed near the geographical center of the county, and its rather high elevation makes it a desirable location. It will be installed in one of the member volunteer fire departments. Twenty-four-hour duty will be established at this station, the cost prorated among the member departments. At a later date, it is expected that a fixed station will be installed at each department's headquarters.

In the event of a fire in a particular area, the mobile unit proceeding from its headquarters will radio to the central county dispatch point, giving full particulars. When additional departments' assistance is necessary, the headquarters will call other departments or will give emergency status.

A public-address system to all stations speeds the handling of alarms. By the flip of a switch we hear Engines 1-3, Truck 2, Chief 3, respond to an alarm of fire at 860 South Main Street.

Radio on Water Department Trucks

The Akron Water Department has four service or emergency trucks operating on the Fire Department frequency. Since our reservoirs extend into three other counties and involve numerous dams and pumping stations and a patroled 18-mile force main, we consider it important that they be on the channel with the Fire Department. Line breaks and troubles reported by the Water Emergency trucks are important to the Fire Department and these reports also serve to keep the radio system alive when there are no fires. In case of multiple fire alarm, these emergency trucks converge on the scene to assure us ample water through valving operations.

A general view of downtown St. Louis, looking eastward from 13th street to the Mississippi River.

IN-SERVICE training for 40 hours, for every one of the 1,845 members of the St. Louis Police Force, is now in its second year. Officers of all ranks unanimously approve the courses, which give the officer better knowledge of the equipment at his command, the divisions that stand ready to cooperate with him, and the most modern methods of criminal investigation. Sixty men pass through the in-service program each week for 30 weeks out of the year. The course covers 20 subjects and includes lectures, movies, demonstrations, and inspection tours.

One of the most interesting stops on any tour of the new streamlined Police Headquarters Building is the newly remodeled radio dispatchers' office, featuring up-to-date motorola communication equipment and air conditioning, and a five-position dispatcher desk. A radio-car-control map on the wall opposite the dispatchers shows which scout cars in every district are available. Immediately below the large map is a clock which spells out the exact time. This type of clock is preferred over the standard time-piece because it is visible to all dispatchers from any angle. The time of day, included after each radio call, can be given with less chance of error by merely reading the figures.

The complete modernity of the new communications center is further enhanced by the presence of a dictaphone belt-recording machine which records every message going out or coming in, so that all orders can be retained for future use if necessary. A year's radio calls exceed 200,000.

New IBM Machines Simplify Records

Steel-fingered, electrically impelled IBM machines have been deftly punching out St. Louis Police Department records in an amazingly short time since their installation in August 1947. These machines are turning out daily (in an hour) a complete duty roster on the 2,213 employees. The duty roster itself contains a veritable mine of information on every employee, commissioned or civilian, of the entire staff of 2,213, including what languages the employee can speak or write; whether he is versed in accounting, operating an elevator, cutting meat, or washing automobiles; the number of his pistol and hundreds of other special identification marks, special aptitudes, or peculiarities. His absences and reason for them, and any special duties performed, are also recorded on these machines.

For identification of criminals, all the persons fitting a given description or type of criminal can be sorted out within a few minutes and viewed by witnesses. The pictures can be inserted in the punched cards and used very much as slides are used in a projection machine. The St. Louis department was the first in the United States to adapt the personal-appearance punched-card system to the process of criminal identification. Even such minute marks as

stained teeth, unkempt hair, lisping speech or Southern accent are included on these cards.

Tons of Records Microfilmed

Another highlight in the program for improving the police service was microfilming the equivalent of 550 four-drawer filing cabinets. This work was performed by Remington Rand Inc., of New York. More than 26½ tons of records were transferred to film and now occupy 20 or 30 square feet of floor space.

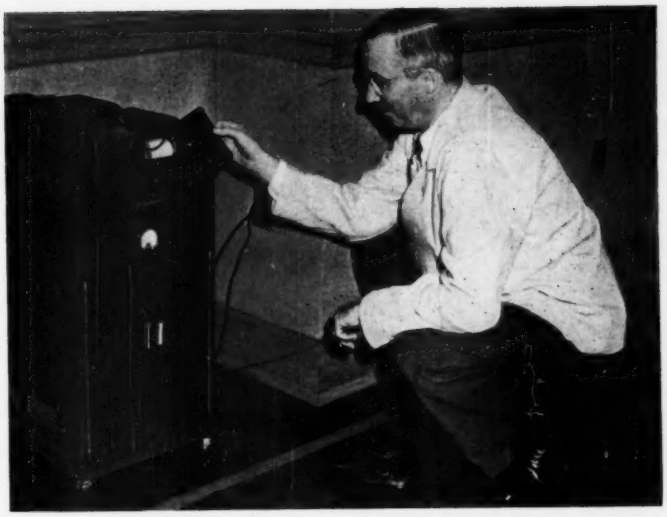
New Types of Police Vehicles

Another "first" in the St. Louis Police Department is the new cruising patrol now in constant service, ready to answer emergency calls. First of its kind in the United States, it is a triple combination of scout car, patrol wagon, and ambulance.

Each car has a crew of two men and will carry two injured or six arrested persons. Originally installed as experimental cars, the patrols have proved so successful that the department plans to have one in each of St. Louis' 12 districts.

Equipment stored aboard the speedy panel trucks for use include stretchers, pillows, blankets, first-aid kits, and gas masks. They have a two-way radio, lights for directing traffic, and a heavy front bumper for pushing wreckage or stalled automobiles from the streets. Most important feature of the new vehicles, according to Chief of Police Jeremiah O'Connell, is that they are on the move 24 hours a day, not immobile at a police station or hospital, waiting for calls. The cruising patrols complete their trouble runs and are back in service in an average time of 16 minutes, against 30 minutes to a call for patrol wagons.

Another automotive improvement is the replacement of horse-mounted patrols in the business district by Harley-Davidson three-wheel servicars.



New Dictaphone flexible-belt recording machine which transcribes every message going out or coming in to radio dispatchers in St. Louis Police headquarters.

Last of horse-drawn patrol wagons in St. Louis Police Department.

"The scout car of to-morrow"—which combines features of ambulance, patrol wagon, and scout car.

St. Louis policemen demonstrate a few of the interesting features of the department's new cruising patrol car.

Making the Merit System Work

in smaller municipalities

A cooperative venture in Michigan that has proved its value

By LEON COOPER
Manager, Municipal Personnel Service
Michigan Municipal League

MANY years of experience with formal civil service, or merit, systems in the Federal Government, the states, and many of the large cities have demonstrated their usefulness. In recent years, public officials have given increasing thought to the desirability of placing smaller local units of government under civil service. In several states there exist various types of state-local cooperation; in others, cities and counties have joined to help each other in personnel management. However, it can be said that for the great majority of municipalities with populations of 50,000 and below, formal merit systems are largely untried and, in fact, out of reach. The primary obstacle has been the inability of these small units to support, as full-time staff, specialists in the field of personnel management.

This was the situation in Michigan in 1935, when two of the "1313" agencies—the Civil Service Assembly and the Public Administration Service—joined with the Michigan Municipal League to undertake an experiment to test the feasibility of installing and maintaining civil service plans in smaller municipalities in the State of Michigan. Four Michigan cities, with populations ranging from 50,000 to 156,000, agreed to participate in a demonstration project.* Two objectives were emphasized as fundamental to the success of the project: the over-all plans should be designed to be of maximum usefulness to smaller jurisdictions, and the system should be tailored to meet the requirements of the particular jurisdiction. The program visualized the following as the essentials of a merit system for smaller units of government:

- A statute, charter provision, or ordinance, forming the legal basis for the merit system
- A position classification plan
- A compensation plan
- A recruitment program based upon competitive examinations
- Procedures for determining promotions, demotions, transfers, lay-offs, suspensions and retirements

It was recognized that only part of the job would be accomplished with the installation of merit systems in these four cities; equally necessary to the success of the venture would be the provision for continuing advice and assistance to merit system governments. Merit systems are not expected to be of continuing usefulness as originally adopted: as a government's services change, its civil service system must be adapted to reflect these changes. For one, classification and pay plans must constantly be kept current if they are to continue to be effective aids to management. It was decided that, of the three organizations which conceived the idea, the Michigan Municipal League would be in the best position to furnish continuing aid to personnel matters to the four original cities and to other jurisdictions interested in undertaking similar programs. This was to be only one of the numerous services provided by the League to all municipalities in the State of Michigan — services which include special aid in purchasing, charter revision, incorporation, research, inquiry service, legislation, and now personnel management.

Accordingly, in 1937, the Municipal Personnel Service was established as part of the Michigan Municipal League. The League was successful in obtaining a grant from the Spelman Fund of New York to aid the Personnel Service staff in their first efforts to provide technical aid and advice at low cost to municipalities in Michigan. While the grants from the Fund constituted, at first, a substantial part of the yearly receipts for the Personnel Service, with the passing of time the grants diminished and municipal receipts increased. In 1942 the grants ceased and the Personnel Service was a going concern. The staff consists, at present, of three full-time employees, in addition to clerical help from the League's stenographic pool as well as technical aid on a part-time basis from University of Michigan graduate students. This appears to be adequate to meet present needs.

Examination and Testing Program

While the Personnel Service was originally conceived as an agency designed to aid local government officials in installing and maintaining civil service systems, it soon became apparent that its staff could be of considerable aid to local governments in special phases of personnel administration. Early in the career of the Personnel Service, an examination and testing program was developed, to the extent that we now have a total of more than 33,000 examination items. While a mere recital of statistics is not in itself impressive, it is worth noting that, to date, a total number of 12,500 applicants have been tested. Thus far 40 different jurisdictions (both within and without the State of Michigan) have had us prepare, score—and in many cases, conduct — written, oral, and performance examinations. We are in close touch with the test exchange service of the Civil Service Assembly, and considerable work is done in the preparation of the Personnel Service's own examinations. We are continuing to enlarge our examination files, and are constantly revising and improving our examinations as a result of statistical research and consultation with subject-matter specialists.

Since 1935, the Personnel Service staff has made complete civil service installations in 21 local units of government within the state—"complete" in this sense referring to the five-point program outlined above. In addition, classification and pay plans have been installed in 11 jurisdictions. It will be noted that the jurisdictions for which examinations have been held exceeds the number of civil service projects installed. This means that "civil service" examinations can be used to good effect by local governments which lack formal civil service systems. All work is performed according to the requirements

* See "Personnel Programs for Smaller Cities," *Public Administration Service Publication No. 73*. 1940. 46 pp. 75 cents. Available from P.A.S., 1313 E. 60th St., Chicago 37, Ill. This excellent report is a comprehensive description of the demonstration project.

of the particular locality. Work has been done from time to time for local units of government in other states as well.

The Personnel Service acts as a clearing house for information regarding personnel practices in Michigan and in other states. A major part of the staff's time is devoted to answering special inquiries from municipal officials on a wide variety of topics, such as labor relations, leave practices, cost-of-living plans, veterans' preference, service ratings, seniority, etc., to name but a few. In January of each year a survey is made of wages and salaries paid by 44 cities in Michigan for certain key positions. This is published in the form of a League bulletin and distributed to the cities which supplied the data. A number of municipal officials have commented on the help this publication has been to them in drawing up their yearly budgets. Last year, a mid-year supplement, summarizing increases since the previous survey was made, was prepared and distributed.

Clearing House of Information

The fees charged are the result of a careful and continuing study of the effect of these charges upon the quality of the work which must be performed and that which municipalities can afford to pay. These rates are well within the means of the average municipality in Michigan. The following charges are made to member municipalities in the League, which now comprise approximately 90% of the cities and villages in the state over 1,000 population.

For complete civil service installations the charge is $8 per employee for the first 100 employees, $6 per employee for the next 100 employees, and $4 per employee for all above 200 employees.

For preparing and scoring "regular" examinations, the charge for League members is $55 for an examination with 25 or fewer candidates, with $1 per candidate for all in excess of 25. For "higher-level examinations" the scale is the same, except that the minimum charge is $75.

A regular examination is one which requires little extra preparation, since the duties of the job being tested for—viz., policeman, fireman, typist, etc.—seldom vary from locality to locality. A higher-level examination, on the other hand, usually entails considerable work in its preparation, since the duties of such positions are frequently unique to the particular local government. Certain minor administrative expenses may be added to these charges, viz., travel, sustenance, etc. For non-League members all the charges are slightly higher than those mentioned above. The other primary means of support for the Personnel Service results from contractual relations we have with six municipalities (at present). For a fixed amount, based upon the number of employees in the classified service, the staff members furnish all technical assistance requested by officials in maintaining their personnel program. The yearly fees are as follows: $7 per employee for the first 100 employees, $5 per employee for the next 100, and $3 per employee thereafter.

The late Harold Smith, former Director of the Michigan Municipal League, reported to the Spelman Fund in 1937 that the Personnel Service's activities had "met with a reception from the cities far beyond expectations. Its success thus far has demonstrated that a league of municipalities acting through a central service in personnel administration can make up for deficiencies which in the past have been so apparent and so fatal to sound personnel programs in smaller communities." Experience since 1937 has simply demonstrated the wisdom of the League's venture into the field of personnel management. For example, none of the four cities which cooperated in the demonstration project has dropped civil service. If anything, civil service has been strengthened in three of these cities with the appointment of full-time personnel officers and staff aids. In the fourth (the smallest of the group) an operating contract is in force between the city and the Personnel Service. Of the 180 cities in Michigan, 13% now have formal civil service systems. In addition, the officials of five villages and counties have elected to place their employees under a pay and classification plan. The authority of ideas which the League has built up has been an important factor in accounting for the spread of the merit system idea among local-government officials in Michigan.

It is not going too far to claim that the success of this phase of the League's activities has had much to do with making many municipal officials in Michigan aware of the necessity for, and the importance of, progressive personnel administration. However, the League's experiment would have failed at the outset if a spirit of cooperation was lacking on the part of municipal officials. As with the program of the Michigan Municipal League in particular, and with leagues of municipalities in general, cooperation between municipalities is the measure of success in any program of this kind.

Does Your City Use Testing Labs?

AT a cost of less than $17,000, New Jersey saved $170,000 during an 18-month testing program.

What testing facilities are readily available to a state official? The New Jersey law says, "state laboratories and commercial laboratories." A small purchase laboratory with one technician can make rapid, useful tests of the strength of textiles, thread counts on fabrics, and the evaluation of carbon paper and typewriter ribbons by a simple little device. The State Highway laboratory of New Jersey is cooperative in analyzing fuels, etc.; the Health Department laboratory in analyzing foods. The facilities of state colleges must be separately judged.

Responsible analyses and advice such as needed for the award of a contract must be performed by an established, unbiased laboratory having equipment and trained personnel. The larger commercial laboratories can perform satisfactorily all the testing of materials that a purchasing agent requires.

Testing is not utilized enough because few persons outside of our purchasing organizations and an occasional forward-looking civic group are interested in testing as a dynamic purchasing accessory. Purchase-testing is fair to the vendors and profitable to the taxpayers.

In the present period of inflation, tax funds have not doubled as has the cost of most essential commodities. The governmental official must get the very "mostest for the leastest." Few investments return greater dividends than a good purchase-testing program, which reveals the right item to buy. Not only is there money saved but, with proper publicity, taxpayers' groups are not as critical, and politicians give their support.

CLARENCE W. WINCHELL
U. S. Testing Co., Inc.
Hoboken, N. J.

Cities Put Damper On Smoke

MORE cities are acting to sweep smog clouds out of the sky, the American Municipal Association reports.

Philadelphia is the most recent addition to the growing list of major cities setting up special agencies to cope with smoke, fly ash, and fumes. Councilmen passed ordinances creating a division of air-pollution control and an air-pollution control board.

Denver, meanwhile, passed a smoke-control ordinance to regulate "discharge of smoke, harmful or offensive gases." The ordinance creates the municipal office of smoke inspector. Highland Park, Mich., approved a smoke-control law similar to that adopted in Detroit last year.

St. Louis and Erie, Pa., also are tightening smoke regulations. St. Louis aldermen decreed that industries, businesses, and railroads must comply with new clean-air regulations within two years. The regulations cover commercial fly ash and "noxious gases, fumes, and odors."

Erie has created a bureau of smoke abatement with an advisory board of three engineers. The bureau is given authority to determine whether dust, fumes, or odors are creating a nuisance, and to enforce corrective measures.

Largest Sewage-Treatment Plant in

Hyperion plant at Los Angeles will serve 150-

VOTERS of Los Angeles, by a whopping five-to-one majority, have approved a $10,000,000 bond issue to finance completion of the $42,000,000 Hyperion sewage-treatment plant.

Like many other developments in this fast-growing American city, Hyperion will be the largest plant of its kind in the country. When in operation it will restore 11 miles of condemned bathing beaches, to the delight of sun-conscious Californians.

The new plant will replace an antiquated sewage-disposal system that has been a political bone of contention for generations.

Completion is expected within two years. It will handle almost all the domestic sewage and industrial waste from a 150-square-mile area populated by 3,000,000 people.

Size Magnifies Problems

Its designers are not departing from tried-and-true treatment processes, but the very magnitude of the chore that Hyperion will be called upon to perform poses problems of its own.

Manual control of flow and treatment processes would be physically impractical, since Hyperion is spread over 220 acres and will have an in-flow capacity of 245 million gallons a day. To lick the important problem of sludge handling, city engineers took a page from the oil refining industry's book. Engineers of the Brown Instruments Division of Minneapolis-Honeywell Regulator Company were consulted. They applied their refinery flow and recording systems to solve the problems of automatic controls.

Mechanical Bar Screens

A detailed examination of the treatment system starts at the first bar screening in the headworks. This is provided by four mechanically raked bar screens, with 1-inch-clear-spacing operation controlled by differential float levels. The fine screenings will be troughed and sluiced to either or both of a pair of Chicago Pump Company comminutors, the effluent from which will be discharged downstream from the grit-removal tanks.

Washed grit will be trucked away after the effluent from the bar screens passes through three 60-foot-square grit-removal tanks and the grit pumped to three Dorr Company grit washers. These facilities, plus chlorination equipment now temporarily used to service the present screening-plant effluent, will be housed in the headworks building. Six 6,000-pounds-per-day Wallace and Tiernan Chlorinators with evaporators, automatic program control, and three scale units comprise the equipment capable of providing both pre- and post-chlorination.

The flow from the headworks building will move through two 108- by 54-inch standard Venturi tubes equipped with Builders-Providence remote summation and recording secondary instruments.

Before primary settling in eight tanks 300 feet long and 56½ feet wide, each divided into three channels, about a half-hour of preaeration will be provided. Cross collectors will be built at the influent end of each tank and the channels will be equipped with longitudinal collectors. In the first two-thirds of the tanks, grease-skimming will take place and the remaining third will be equipped with cross-effluent weirs. These tanks will provide one and a half hours' detention.

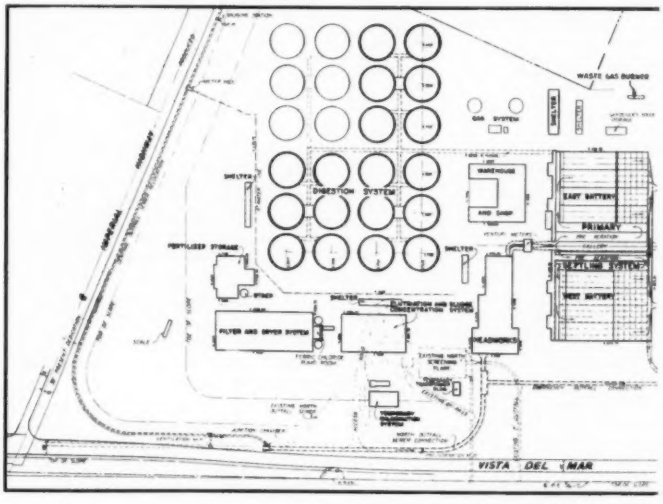
From the primary settling system, sludge will be pumped to the digester system by a battery of 12 Chicago Pump Company Scrupeller sludge pumps, housed in four pumping structures. A master timing selector will regulate with simplicity and certainty the periods and sequence of pumping to the many digester tanks. Thus a vast flow of sludge can be controlled by an operator from a central point. The pumps will be driven by Varidrive motors to allow further flexibility of operation in selecting pumping rates. In a two-and-a-half-hour period, aeration will be accomplished in 32 tanks, each 32½ by 300 feet and 15 feet deep. They will average a 25% sludge return. Another half hour's aeration will be provided by the sludge influent, and effluent channels.

The final settling system, of 20 tanks each 76 by 125 feet, will receive the mixed liquid from the aeration system. Each tank has four channels. They provide a detention period of two hours and surface loading of 1,290 gallons per square foot per day. An overflow rate of 10,410 gallons per lineal feet per day will be provided here by a comprehensive weir system.

Submarine Outfall

The submarine outfall will take the effluent from the final settling tanks after chlorination treatment, a mile out into the ocean. Engineers estimate that during the bathing season the city will have to spend only $150 a day for chlorine in the new plant, while the daily chlorine cost last bathing season ran to $1,500.

The digester system will contain 18 tanks, each of 2,500,000 gallons' ca-



Country Will Correct Beach Pollution

square-mile area with three million inhabitants

pacity. The tanks will be 110.92 feet in diameter with 30.5-foot side water depth, of prestressed concrete construction with concrete dome roofs and conical bottoms.

Set up in three batteries of six tanks each, the tanks will be controlled from a control house located between the central two tanks of each battery. In initial use, the central two tanks have been designated as secondaries, but are not required to be so used.

Twenty-five Days' Digestion

About 25 days of digestion will be the capacity, with sufficient steam available as "waste" from the power and blower plant to maintain a temperature of 100° F., in the 12 primary digesters.

The flow-ratio-control system, for controlling the distribution of steam and sludge, was developed by Brown engineers for flow of petroleum products to refineries, plus remotely controlled valves which allow sludge pumped from the primary settling system to be fed to the three digester batteries simultaneously and to the proper primary digester at the operator's option.

The master control will be located in a control house between the two central digesters in the battery nearest the plant center.

In similar control houses of the remaining two batteries, battery flow also will be simultaneously recorded, all records being triplicated at all three points. In the control houses, other M-H instruments will indicate the steam flow heating the digesters.

The operator will be able to sample and select the withdrawal point providing clearest liquor by means of supernatant-withdrawal piping of a flexible-swing-selector design, especially conceived for this plant.

As it flows by gravity to the elutriation tanks, the digested sludge will again be flow-controlled and metered.

The two elutriation tanks are each 40 feet wide and 200 feet long, and employ counter-current elutriation. Pumps will remove wash water from the final effluent and other pumps in the elutriation-system-control room will deliver the washed sludge to 12 vacuum filters in a filter and dryer building after conditioning with ferric chloride.

Conveyor belts will carry the discharged filter cake to a section of the building containing four Raymond dryers with temperatures controlled by Brown instruments. Each dryer has a water-evaporating capacity of 22,500 pounds per hour. The dried fertilizer will be subjected to a Brown instrument control temperature of 1,800° F., insuring sterilization of the fertilizer, making it suitable for use on leafy vegetables and similar growing things.

Sludge incineration equipment is being installed to provide an operating alternative if dry-sludge transportation difficulties arise, or if incineration proves more economical than facing possible unfavorable fertilizer market conditions.

Income from Sale of Sludge

Anticipated production of dried sludge is about 200 tons a day, and facilities to load trucks from the bottom of hoppers, fed from a building adjacent to the dryer, are in the plans. The anticipated income from the sale of sludge is not less than $700,000 per year.

The plant site, owned by the city, was a vast waste of sand dunes, in the center of which stood the treatment plant which has given Los Angeles only token service for 50 years. Some of the dunes pile 175 feet above sea level, and all had to be reduced to a building site elevation of 40 feet.

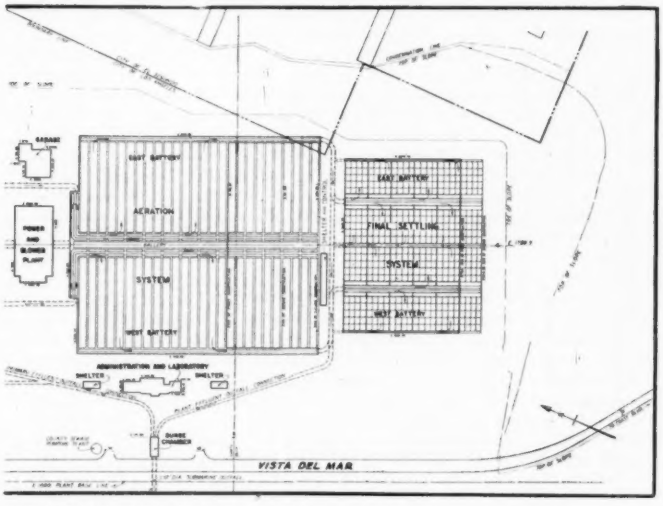
At a cost of about $3,500,000, Peter Kiewit Sons' Company and Construction Aggregates Company, low bidders, undertook to excavate and remove approximately 14,000,000 yards of material. This job, now nearly done, widens the beach an average of 250 yards 6 miles above and below the plant.

Outfall Construction

Another contract, which will run to about $3,500,000, was granted to Guy F. Atkinson Company to complete the submarine outfall consisting of a 12-foot-diameter tube extending a mile offshore. Reinforced concrete pipe, wrapped in reinforced tremie-placed concrete resting on piles, was used for the inshore section. The offshore section, now completed, employs thirty-two 100-foot-long sections, made with the ends bulkheaded at nearby Terminal Island. The sections were launched and towed to the site where a pier was constructed the full length of the outfall for placing the pipe, pile-driving and anchoring the pile bents at 100-foot centers.

A continuous rubber gasket, 4 inches thick and 10 inches wide, fitted an annular groove in each joint. The offshore end of each section was formed in the shape of a half socket. After a new section was placed and pulled into position, the upper half of the socket was sealed by pouring tremie concrete, forming a semi-rigid connection. For additional security, steamboat

(Continued on Page 141)



Modern Water Rates and Service Charges–X

Minneapolis, Minn.

Rates (Quarterly Basis)

15c per 100 cu. ft. regardless of quantity.
20c per 100 cu. ft. for municipalities outside the city served through a master meter.
25c per 100 cu. ft. served through individual meters to users outside the city.

Meter Size	*Net Minimum Monthly Bill*	*Net Minimum Quarterly Bill*
⅝″	$ .70	$ 2.00
¾″	1.00	3.00
1″	1.65	5.00
1½″	3.35	10.00
2″	5.35	16.00
3″	10.00	30.00
4″	17.00	50.00
6″	35.00	100.00
8″	50.00	150.00
10″	70.00	200.00
12″	85.00	250.00

10% shall be added to each bill if not paid within 15 days after receipt.

General Data

Population served	515,000
Services (100% metered)	103,050
Hydrants	7,494
Valves	10,695
Miles of mains	883.72
Service levels	Three
Storage	60 mg
Supply	Mississippi River
Treatment—softening, filtration, chlorination	
Average demand	51.6 mgd
Plant capacity	156 mgd

Water Characteristics

$CaCO_3$ (average calculated), raw, 167.6 ppm; treated, 73.3 (average soap hardness).
Fe, raw, average: 0.19; minimum, 0.07; treated, 0.03 (average).
Mn, raw, 0.03; treated, 0.00.
pH, raw, 8.1; treated, 8.4.
Temp., 75.5° F.—August, 1947. 32.1° F.—Dec. 1947.

Customer Costs Per Month

3,500 gals. (467 cu. ft.)	$0.70
5,000 " (667 cu. ft.)	1.00
10,000 " (1,335 cu. ft.)	2.00

These rates in effect since Jan. 1, 1949.

EDGAR W. JOHNSON, *Water Works Engineer*

Detroit, Mich.

Rates (Monthly Basis)

	Per M cu. ft. In City	*Outside*
First 10,000 cu. ft.	92c	97c
Next 90,000 cu. ft.	74c	78c
All over	62c	65c

Service Charges

Meter		
⅝″	$ .24	$ .50
¾″	.36	.62
1″	.72	.98
1½″	1.44	1.70
2″	2.40	2.66
3″	3.56	3.62
4″	4.32	4.58
6″	7.20	7.56
8″	11.04	11.60
10″	15.84	.....
12″	18.72	.....
16″	30.24	.....
24″	53.28	.....
Minimum bill, per quarter	$1.64	2.47

Rates to suburban communities covered by master meters in the Detroit rate 5% surcharge. Fire line rate is the metered charge plus one-third service charge, in applications to the city rates. There is no special fire line rate to suburban users.

General Data

Population served	2,415,000
Services (99% metered in Detroit)	351,336
Hydrants (in Detroit)	29,301
Valves	30,167
Miles of mains	5,153
Service levels	4
Supply	River
Treatment—Coagulation, filtration chlorination	
Average pumpage	354 mgd
Rated plant capacity	1221 mgd

Water Characteristics

Calcium ..27.0 ppm pH 7.9
Fe .....0.02 Temp. .... 53° F.
Mn ....

Customer Costs—Quarterly Billing

3,000 gals. (400 cu. ft.)	$1.64
5,000 " (667 cu. ft.)	1.64
10,000 " (1,333 cu. ft.)	1.94

These rates were established as of February 1949.

LAWRENCE LENHARDT, *General Manager Board of Water and Sewage*

Schuylkill Haven, Pa.

Rates (Quarterly Basis)

First	5,000 gals.	$3.25
Next	15,000 "	.45 per 1,000 gals.
"	60,000 "	.27 " " "
"	100,000 "	.18 " " "
"	2,320,000 "	.135 " " "
"	7,500,000 "	.10 " " "
All over	10,000,000 gals.	.09 " " "

Provided, however, that no bill for any quarter shall be less than is indicated by the following schedule, which is based on the size of the meter installed for the service:

Size of Meter	*Quarterly Minimum*
⅝″	$ 3.25
¾″	3.50
1″	4.00
1½″	12.00
3″	24.00
4″	50.00
6″	100.00
8″	200.00

All Venturi meters shall be classed as 8-inch in size.

Public and private fire hydrants will be charged at the rate of $25.00 each year, or $6.25 each per quarter.

General Data:

Population served	9,000
Services (100% metered)	2,240
Hydrants	240
Miles of mains	12
Supply	Wells
Treatment	Chlorine
Average demand	0.7 mgd
Plant capacity	400 mgd

Customer Costs Per Month

3,000 gals. (400 cu. ft.)	$1.68
5,000 " (667 cu. ft.)	2.50
10,000 " (1,333 cu. ft.)	4.23

These rates were adopted September 30, 1944.

JOHN EDLING, *Superintendent Schuylkill Haven, East Water Department*

16 Municipalities, 16 Utility Bills

ALL the bills shown at the right are for water use unless otherwise specified. They are made on Burrough machines. They start with the *District of Columbia* (1), which uses a Class 30 utility billing machine. In lieu of a graduated rate scale there is an annual advance minimum charge of $10.94 for the use of 7,500 cubic feet of water. The machine prints bills, ledger card, and proof journal simultaneously. 2. *Mason City*, Iowa. 3. *Bartlesville*, Okla. 4. *Niles*, Ohio, where the machine writes separate bills for water and for electric service to 5,877 consumers.

5. *Ashland*, Wis., which will bill for sewage as well as water after construction of a disposal plant. 6. *Fairbury*, Nebr., whose billing machine bills separately (a) for water and electricity (3,200 customers) and (b) for refuse (1,800). On the specimen bill shown, H-WAC means "hot water air conditioning"; HC means "heating and cooking"; WT means "water." 7. The *Austin*, Texas, machine writes one bill for both water and electricity (34,769 consumers). 8. At *Menasha*, Wis., 2,875 water users and 4,710 electricity consumers receive one monthly bill covering both charges.

9. *Manitowoc*, Wis., writes both the water charge and the electricity charge (for 10,023 consumers) on one bill. 10. *Corona*, Calif. 11. *Wichita Falls*, Texas, puts on its postcard bill the charges for water and refuse (14,000) and sewer rentals (in 85 cases) outside city limits. 12. *Seattle*, Wash., bills its 115,000 accounts and records the charge on ledger cards in one operation. 13. *Cedartown*, Ga., bills for water and sewer service on one bill. 14. *Riverside*, Calif., puts on one bill the charges for water, electricity (15,711 accounts), and sanitation (10,600). 15. *Akron*, Ohio, bills for water and sewer service (160,000 accounts) on one bill. 16. *New Kensington*, Pa., obtains a positive check by balancing the total of the meter readings with the data on the ledger cards, which are copies of all the bills.

Burroughs customers' billing machine writes both bill and office record and furnishes a journal. It warns the operator if a mistake is made in computing consumption in the meter book or in entering reading and consumption figures on the keyboard. This eliminates the need for checking consumption figures before writing bills. Figures are automatically repeated *by the machine* on stubs and ledger. Bills completed are automatically ejected and stacked in correct billing order. As shown here, the machine is applicable to either the stub, bill-and-ledger, or register-sheet plan.

16 Municipalities Utility Bills

KANSAS CITY'S

People and Government Travel Together

By DR. HAYES A. RICHARDSON
Director, Welfare Department
Kansas City, Mo.

HOW can a city government understand and interpret the hopes and desires of its citizens? How can the people express these desires? How can a city government talk with its citizens so they may realistically understand the plans of their city government and its resources, without fear of paternalism or despotism? How can citizens and government share in the planning of a city? These are problems which have ever faced a non-partisan municipal government.

City officials, meeting with community councils to discuss plans for the immediate neighborhood or the entire city, cease to be mere names read in a newspaper. Residents become partners in helping build a city for good living, realizing economic and social needs and differences of opinion, yet achieving an understanding of those things that must be done in common with their city officials whom they have come to know through their contacts in community council activities.

Social Engineering of Community Service

Community councils don't just happen, nor do their programs spring automatically into being. Social engineering is needed. This has been provided in Kansas City by the Community Service Division of the Welfare Department, which was established in 1943 (see Chart) "to coordinate the resources of the community, to report on social conditions, and to recommend programs needed to meet social problems."

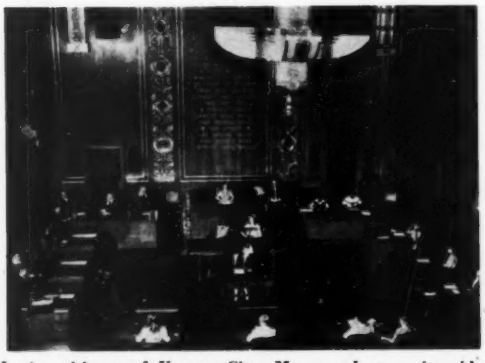
The Division furnishes a community worker for each high-school district of the city—communities of approximately 50,000 persons each. Because smaller, more homogeneou neighborhoods often have unique problems, and because citizen participation can be strengthened at this level, neighborhood councils have been developed. These feed into and become a part of the larger community council and are served by its community worker. He usually lives in the community and knows the people, their customs, and their temperament. He knows the problems and the agencies and resources within the district. With this reservoir of information and his ability to work with people as he finds them, to encourage or dissuade activity as need be, he is able to achieve his real goal and that of the city government—the development of resident leadership and acceptance of responsibility by citizens for their own environment, and recognition of signs of physical or social decay where group action would be effective. Self-interest, inherent in every individual or group, is tempered to the best interest of the larger group —the community—since all interests are represented in the council.

Perspective Through Council Contacts

The city government, through the community worker, its "ambassador of good will," and by direct contacts with the community councils in each section of the city, obtains a perspective which helps to equalize services to all sections of the city and prevents neglect of the more favored areas because of concern for the more dramatic problems of other districts.

Matters of special interest will vary as councils change and as priorities for projects are changed from time to time. Basic concern, however, will always remain for the things that contribute to a high degree of civic health and satisfactory surroundings, such as good streets and lighting, adequate police protection, hospitals and playgrounds. Some of these things people may provide for themselves; some may require help from the city government.

As these groups plan and face their own needs, they are brought face to face with the problems of finance, and legal limitations, and with the fact that they must pay for what their city provides. As continuing partners in the



Junior citizens of Kansas City, Mo., conduct a city-wide council meeting in the Council Chambers of the City Hall.

Junior citizens make a house-to-house survey for the clean-up program. "Junior Cities" operate through the schools.

This Missouri city has paved a two-way street of understanding on which increasing traffic is running smoothly. The government and the people are brought together through organizations known as Community Councils.

concerns of urban living, they also assume responsibility jointly with the municipal government for action or inaction.

A large Negro area without sewers was also being inadequately served with water. The original white owner of almost all the houses had a contract whereby she bought water from the city and supplied it to each tenant for a charge. The neighborhood council found that many of the property titles were defective and that some homes were being sold for taxes. Cooperatively they are clearing their titles. Through special assessment they have obtained sewers, though at a high cost. The expense of supplying water mains through this rocky area, when added to the cost of sewers, would be prohibitive. Now they are working on a program whereby the city may subsidize the development of an adequate water supply.

Smoldering dumps have been a major concern, but encouraged by community interest the city has found a method of eliminating these unsightly spots. Many areas have conducted clean-up programs. One small street was considered a plague spot where crimes of all kinds were not unusual. Two or three of the leaders of the area went to work to develop a small garden project. The Public Works Department hauled away truckloads of debris, and a pride in the neighborhood was cultivated.

Transportation problems in many neighborhoods have been acute. Meetings have been arranged between the public transit company, the city, and neighborhood groups. Usually a satisfactory compromise has been worked out.

Help in Relocating Families

Kansas City had to move 621 persons displaced as the result of the acquisition of right-of-way for a new traffic-way. A community worker was able to go in and interpret to the people the reason for their eviction, and to help them find new homes. In many cases, the Health Department has found places it was forced to condemn even in the face of housing shortages, and assistance has been given in relocating these families.

An adequate rat-control program has been encouraged by the community workers throughout the areas. Special adult-education programs have been carried on, including institutes on family living, health, and other subjects of special value to a community.

Temporary housing developments for veterans have created independent towns within the city. The demand for units was greater than the supply. The Community Service Division submitted the plan of objectively assigning units according to relative need. Neighborhood councils in the nine veterans' projects were organized as fast as the units were filled. Crowded quarters and many children produced difficulties. Through their own organization, however, the veterans have learned to work together and have developed many special projects—immunization centers for the children, project newspapers, adult education, and totlot supervision.

Communities have developed a desire for adequate recreational areas. The community worker has interpreted to them the city's policy of acquiring land by benefit assessment.†. Communities have accepted this practice and requested that properties be obtained for this purpose, recognizing the long-range value to them and their property. Community councils have sponsored community centers and play areas financed by organizations within their midst, or have obtained extended services from programming agencies within the city.

A survey has been made of the area in Kansas City's north side, which is the residence of many unattached men in need of rehabilitation, with recommendations for solving its social and physical problems.

Bond Issues Backed

When the master plan for the city was being drafted, city planners met

*With recognition of the assistance of Mrs. J. J. Butler, Commissioner of Community Service, and Mrs. Harold Marshall, Secretary of the Central Coordinating Youth Council.

†See "Financing Kansas City's Parks," by L. P. Cookingham, City Manager, Kansas City. THE AMERICAN CITY, June 1948, pages 99-101.

Teen-agers convert a garage into a youth club. Machinery also exists for participation in the national youth events.

Representatives of all student-managed youth centers meet each month. The Mayor's Youth Conference meets annually.

with community groups. Projects and proposed improvements were discussed. Later, citizens visited the City Hall to study and evaluate the plans and recommendations being prepared. The result was not a superimposed plan, but a mutual one. The citizens of Kansas City recently approved a bond issue of $41,000,000. The movement for this was spearheaded by the Citizens Regional Planning Council, which gave major credit for the interpretation of the program and its success to the various community councils.

Community councils have also helped to secure leaders for Scout troops and parent-teacher associations. They have assisted churches in making their resources more useful to the community and have helped to interpret to the Board of Education the desires of the people to utilize public-school facilities more fully.

Central Body for 54 Councils

The Community Service Division also offers assistance and extensive interpretive material for several city-wide programs. An Association for Community Councils provides the means of exchanging experiences and methods used in achieving local improvements and provides its members with knowledge of city-wide projects which provide further incentive for activity within community boundaries of the 54 neighborhood and community councils.

The councils are young and the amount of money at their disposal varies with the economic means of the members and the special activities in which the councils become interested. Some secure funds through membership dues, though no one is denied participation for failure to pay dues; voluntary contributions have defrayed the expenses in others, and small money-raising projects have also been used to build up council treasuries. Where councils are just organizing or are unable to provide postage for mailings, they have been assisted by the Community Service Division. Churches, branch libraries, Y.M.C.A. buildings, neighborhood houses, and schools have all welcomed council meetings free of charge.

The Central Coordinating Youth Council, composed of administrative heads of 15 agencies affecting youth, has brought to light the need for integrated programs.

The Mayor's Youth Conference, which is sponsored by the Council, is a concrete example. An annual affair begun in May 1947, it attracts a thousand leading citizens to discussions of every phase of the city's life which affects youth. The work from one conference to another is carried over and progress during the intervening period is re-evaluated. Recommendations for action are evolved from the conferences. These have brought about the enactment of ordinances to guarantee protections and safeguards for the city's youth. A continuing program with a positive approach of social planning for youth has thus been developed, and the machinery exists for effective local participation in national youth events.

Junior Citizens Programs

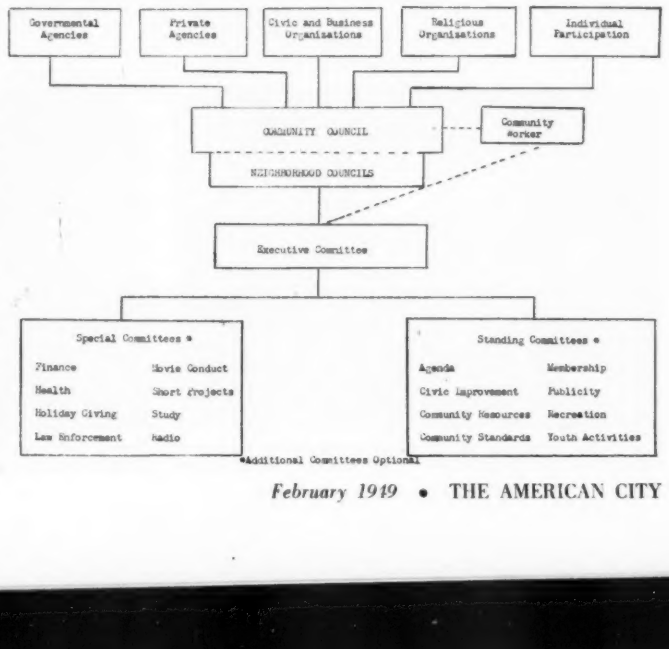
The Junior Citizens Program, developed through elementary schools and reaching 10,000 pupils, gives actual practice in operating non-partisan city government. The city presents charters to schools operating "Junior Cities" and administers the oath of office to officials elected according to state and municipal law. Administrative heads are appointed by these junior officials. The "Director of Public Works" has the responsibility of cleaning up the playground. The "Director of Finance" is responsible for moneys obtained from paper sales, etc. Away from the schools the junior citizens work with the theaters in stamping out vandalism, with the citizens in clean-up programs and the reduction of light breakage. They have a weekly radio broadcast on which, for example, the City Manager will appear to discuss the problems and responsibilities of Junior "City Managers." During the summer, a camping session is held to which representatives of the various schools are invited. In the fall, as a result of the exchange of ideas, new plans are put to work at the several schools. Representatives of all Junior Cities meet annually in the City Hall Council Chambers for a series of institutes patterned after the adult council.

With a budget of $48,000, the Community Service Division employs four clerks and fourteen community workers, two of whom work with the Junior Citizens Program. It finances three monthly bulletins. These are: *The Pulse of the City*, which collects statistics indicating the present social health of the city and social trends; *The Junior City News*, which carries an account of the activities of 26 Junior Cities, their camp experiences and their city-wide institutes; and the *Bulletin of Community Councils*, which carries news of the activities of the several community and neighborhood councils and such information of city-wide interest as is relevant to their own undertakings. From time to time, it prepares surveys and interpretative material to strengthen community responsibility and understanding. This money provides a broad and genuine program, worthy of evaluation in terms of dollars and cents, since it is interpreted by direct contact with an estimated 50,000 people, or more than one-tenth of the city's population.

People are beginning to take an interest in their government as something of which they are a part, and they now have a method by which they can approach and discuss, as stockholders, what they would like to have done. The old idea of "those in power" and "the powers that be" is supplanted by the idea that those in the City Hall are serving the people of Kansas City and wish to avail themselves of the help of everyone. The mechanism has been provided whereby the vision of each citizen for his town is nearer reality.

This is the story of an organization and a program through which Kansas City has become not "Tom's town" nor the possession of any person or group, but—"our town."

PROPOSED ORGANIZATION CHART OF COMMUNITY AND NEIGHBORHOOD COUNCILS



*Additional Committees Optional

Yield Insurance

For Municipally Financed Rental Housing

The "Housing Act of 1948" (P.L. 901) establishes a new housing-insurance program in the FHA. Unlike existing mortgage-insurance programs, this is "yield insurance" to protect the direct investor in rental-housing projects for families of moderate income where no mortgage is involved. The law defines broadly the "investor" who is eligible for the insurance. Generally speaking, the investor may be a natural person or any legal entity and may, therefore, be a municipal corporation or a local housing authority.

By JOHN R. SEARLES

Economist, Office of the Administrator
Housing and Home Finance Agency
Washington, D. C.

DIRECT investment with yield insurance may have special advantages for cities or local housing authorities which are planning the development of unsubsidized rental-housing projects either on their own or in cooperation with private business interests. First, one of the largest single elements in the operating costs of a rental project is the local real-estate tax. If any special local-tax benefits are to be granted to a project by a city, the city will be able to insure that the benefits are reflected in lower rents. Furthermore, municipal corporations are not subject to federal taxation, whereas private corporate interests in rental housing now experience a relatively heavy corporate-income-tax liability. Finally, in the municipal-bond market, cities have a source of funds from which to raise capital for direct investment in rental housing.

"Yield insurance" offers protection to the investor who is able to finance directly a rental-housing project and is interested in a long-term stable yield. The program is intended to remove some of the risks which have kept investors from this field in the past. There are a number of advantages in direct investment in housing projects over other common types of financing. First, economies are possible in the initial financing of the project, as the investor is interested in the safeguarding of his principal rather than in realizing an early capital profit. Furthermore, the annual yield and amortization will generally be less than debt service and profit on a mortgage-financed project. In the case of a project sponsored by a local housing authority or any other public agency which is not concerned with increasing the return of its investment, these savings could make lower rents possible.

Finally, the financial structure of direct-investment projects is better able to weather general economic declines, which would force many mortgage-financed projects into foreclosure. The yield and amortization schedule on yield-insurance projects is planned to permit a reduction in rents in later years, if necessary to insure high occupancy, without requiring a reduction in the initial yield or the annual amortization charge.

The insurance, under the Housing Act of 1948, covers an annual yield of 2.75% on the outstanding investment and an annual amortization charge of 2% on the cost of the project; and the insurance may remain in force until 90% of the cost has been paid off. The annual yield is not limited to the 2.75% covered by the insurance. In fact, the law provides that initial rent schedules should be high enough to give reasonable assurance of producing a yield of at least 3.5%. With the 2% annual amortization, this means that the program requires a minimum planned net income, after operating expenses, of 5.5%. Actually, the net income of some insured projects is expected to be higher than this, and if the original net income holds up, the annual yield in later years on the reduced outstanding investment will increase.

When a project earns more than enough to pay the minimum yield and 3.5%, as differentiated from the guaranteed yield, one-half of the excess must be used to retire the outstanding investment. After the yield of 5% has been reached, all excess earnings must be used to repay the investment. If only the minimum 2% was paid on the investment each year, the insurance contract could run for 45 years, until 90% of the cost had been written off. But, because of the provisions for speeding up the retirement, contracts may expire in a shorter time.

If an insured project goes sour and fails to earn enough to meet operating expenses, the insured yield of 2.75%, and the 2% minimum annual amortization charge, the Federal Housing Administrator will make up the difference up to the total amount of the insured yield and the insured amortization charge. If a project cannot earn enough to pay operating expenses in any year, the Adminstrator may defer the insurance premium for that year. In any typical mortgage-financed moderate-rental housing project, up to 50% of gross income goes to operating expenses, including real-estate taxes. Remaining income is applied to yield interest, and retirement of investment. It would take a 50% decline in rental income, therefore, to push a project so far into the red that it could not earn operating expenses, a decline so drastic as to be almost unprecedented in the moderate rental field. If a project should fail to this extent and operating losses amount to 5% of the cost, the investor may turn the project over to

the Administrator and receive in exchange debentures, comparable to U. S. Government Treasury Bonds, in an amount equal to 90% of the outstanding investment in the project. The law also provides that where yield insurance claims paid equal 15% of the cost of the project, the Administrator may take over the project and give in exchange debentures equal to 90% of the outstanding investment. These provisions set a definite limit on the amount the investor can lose on an insured project. The amount of possible loss becomes less after each year of successful operation, but under the most unfavorable circumstances could not exceed 10% of the cost of the project.

Conditions and Regulations

To safeguard the insurance fund and to assure that the fund is administered to advance the purpose of the program to produce moderate rental housing, the law contains two conditions. First, the Administrator must be satisfied that there is a need for rental housing in the locality of the proposed project, at the rents proposed to be charged. Second, he must be satisfied that the project is economically sound and also be satisfied as to its quality, design, size, and type.

The Administrator will also pass on initial rent schedules. Planned rents are required to be high enough to give reasonable assurance of earning at least the minimum yield of 3.5% (of which 2.75% is insured) and the annual amortization charge (all of which is insured) but low enough to meet the needs of families of moderate income. He must also approve any subsequent rent increase. The Administrator will require annual financial reports. These would be necessary to fix the liability of the Insurance Fund. Finally, he may make rules and regulations to carry out the purposes of the Act.

Special Considerations

There may be a number of problems in the use of yield insurance by cities, but those that can be foreseen now do not appear to be insurmountable. Cities should have no difficulty in complying with the conditions in the law to be met by the investor and the project. But some technical problems may arise in connection with financing.

If cities do not have sufficient funds on hand to make the substantial direct investment required, financing may be sought in the municipal bond market. This would seem to require some device for using the federally insured yield and annual amortization charge to back up the municipal securities which will be sold. In this case, the return, call date, and maturity or amortization date of the securities must be flexible enough to meet variations in the yields and annual amortization charges earned by the project to the extent possible under the yield insurance contract. Under a yield insurance contract, the yield could vary from 2.75% to 5% and the annual amortization charge from 2% up. If a project is unusually successful, a device must be available for speeding up the retirement of the securities.

It is probable that cities using yield insurance as security for rental-housing financing will have to establish reserves from general city revenues. Yield insurance does not cover a project's operating losses, and in the event a project is taken over by the Administrator under conditions which have been described, the city as investor will receive debentures for 90% rather than 100% of the outstanding investment. The debentures rather than the project would then support the local housing securities. When a project is started, the reserves might have to equal 10% of the total cost, but could be reduced as the investment was gradually retired from rental income.

The use of sinking or local trust funds for direct investment in insured rental-housing projects is another possibility, although state and local permissive legislation would be required. These considerations are suggested to indicate the kind of problems cities have to face in using the yield-insurance program. Undoubtedly many different methods of local financing can and will be considered. The governing condition in any local plan of financing must be that it conform fully to the terms of the yield-insurance contract which, in turn, will be governed by the provisions of the Housing Act of 1948 and the Rules and Regulations of the FHA.

Conclusion

Although yield insurance for direct investment in rental housing has been discussed for a number of years, it is as yet untried, and its potentialities only can be estimated. A few cities, among them New York and Rochester, N. Y., have entered the unsubsidized rental-housing field either alone or with the cooperation of local real-estate and banking interests. Other cities are considering the contruction of moderate-rental projects. It may be that the new yield-insurance program will be of substantial assistance to cities as a means of meeting their pressing needs for rental housing for veterans and others in the moderate-income group.

To give assistance to interested groups in working out yield-insurance programs, Thomas S. Gray has been appointed Administrative Officer in charge of Cooperative Housing and Yield Insurance for the Federal Housing Administration.

Santa Rosa, Calif., Expands

Almost all departments of a city go into action when a new residential development comes into being. Santa Rosa, Calif., is no exception. In this subdivision, street, water, and sewer departments are already at work. An Allis-Chalmers HD-5 backfills a 24-by-54-inch water pipe trench at the rate of 300 feet per 12 minutes.

LA PLATA, MO., ELECTRIC PLANT PAYS

BIG DIVIDENDS

THE idea that it takes a large community bolstered with special industrial loads to make a municipally owned electric plant economically a going concern has often been disproved. Evidence of this can be observed in the fact that, of approximately 650 municipal electric plants, 520—or more than three-quarters—are in communities of 2,500 or less.

A typical case is that of La Plata, Mo. This town of 1,500 in northeastern Missouri, where farming, dairying, and poultry-raising are the chief vocations, has a completely modern power and light system. Since it began operation on November 21, 1938, with two Fairbanks-Morse diesel generating units, each rated 300 hp at 300 rpm, it has served with a steadily mounting output of electrical energy at reduced rates. It has consistently retired the bonds on its purchase out of its surplus earnings. It has contributed substantial financial aid to several important civic improvements, and in June of 1947 it installed its third Fairbanks-Morse diesel generating unit—a 300-hp Model 32 unit with a 200-kw generator—to provide for still-increasing demands.

This is showing excellent returns on the original cost of $98,000, of which all payments on the direct obligation bonds are being met by power and light earnings.

In 1939, only one year following the beginning of operations, the city purchased a building to be used as a City Hall; one-half of the $4,200 cost was paid by the Power and Light Department. The Water Department paid the other half. No tax money was used for this civic addition.

As the plant's prosperity increased, during the calendar year of 1945, it was able to show a net profit of $9,837 after all operating costs were paid. By July 1946 the plant earnings, in addition to retiring the bonds on schedule, had accumulated a surplus of $37,750 and saved the city $25,200 formerly raised by taxes. The year of 1947 surpassed the $30,683 of total collections with the figure of $34,825.

An immediate benefit with the induction of the municipal plant was reduction of residential, store, and commercial rates, and free power for all city street lights and the white way. Previously, the bill for municipal street lighting had been $160 a month. Water pumping, which had cost the city $200 a month, was reduced to $80. Annually this amounts to a sizeable saving, permitting the city's general fund an opportunity to spend on other municipal necessities or improvements.

After the war, the annual increase of kw's generated has been over 20%. In the past six years the annual kw output has practically doubled. The output during the past six years has run as follows:

1942	611,300 kw
1943	655,200 "
1944	711,000 "
1945	778,100 "
1946	947,600 "
1947	1,143,900 "

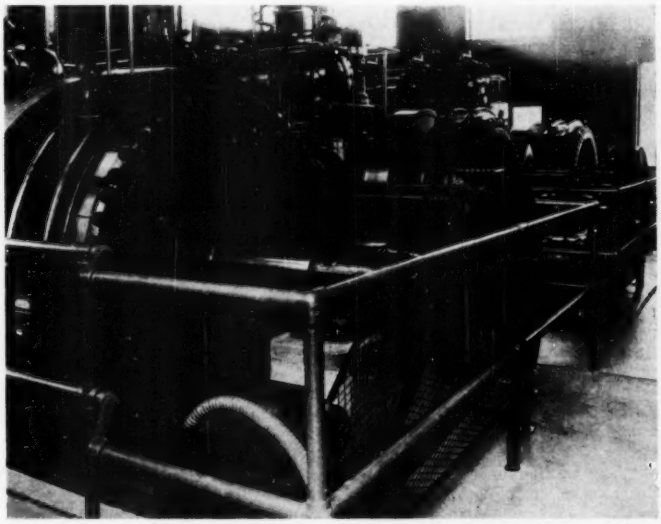
The appearance of the plant reflects the prosperity and the pride that the townspeople take in it. Designed by E. T. Archer & Company, engineers of Kansas City, to provide maximum light as well as structural strength for the operating floor, it is a model also in record for other communities considering municipal ownership. The grounds are as immaculately kept as the building, inside and out.

The three 300-hp Model 32E14 Fairbanks, Morse & Company diesel generating sets are equipped with the following auxiliaries: Woodward governors, Zenith fuel-oil strainers, Purolator lube-oil filters, Renuoil lube-oil reclaimer built by Diesel Service Company, Burgess air-intake filters, Maxim exhaust silencers, Alnor pyrometers, Ross heat exchangers, and Crane Company valves.

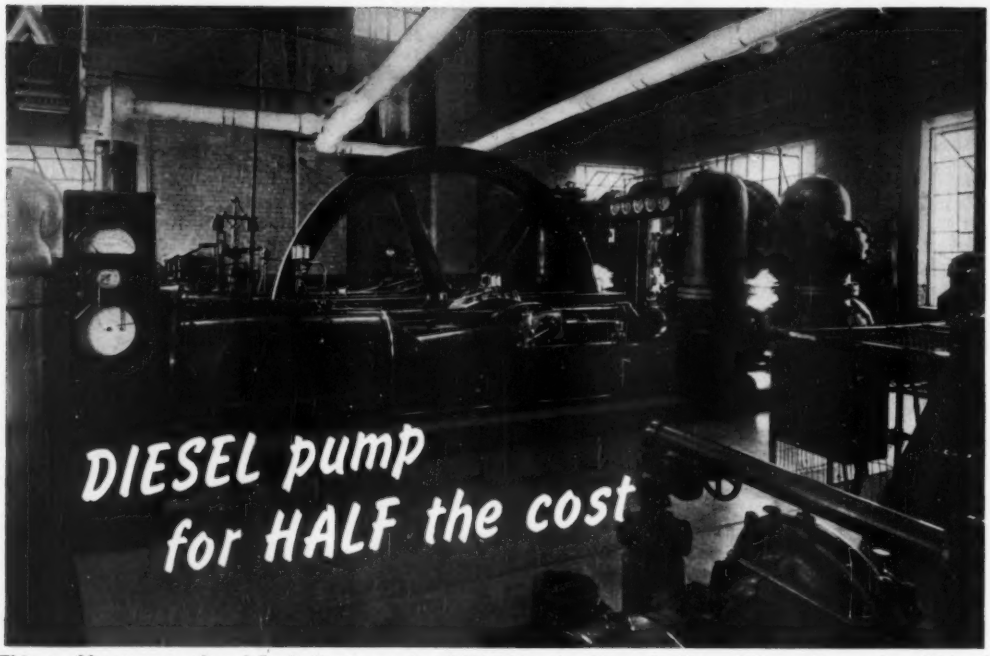
The Wurdack Electric Manufacturing Company has supplied the switchboard, using Roller Smith Meters.

Mayor Mack Derr (left) and W. F. Cullen, Chief Engineer of the La Plata plant.

The two generating units first purchased are controlled by Allis-Chalmers voltage regulators. The latest unit is controlled by a General Electric voltage regulator.



In the foreground is the new diesel generating unit purchased in June, 1947. Last year it generated 1,144,000 kw's, almost doubling the plant's 1942 record.



This stand-by steam-crank and flywheel unit, rated at 4,000,000 gpd, will soon be dismantled to make way for additional modern power equipment.

Independence, Kans., replaced reciprocating steam plant with diesel power and reduced the pumping costs from $16.47 to $8.64 per million gallons

IT WOULD be difficult to find a better example of the trend away from the old reciprocating steam engine to the modern gas-diesel-power producer in municipal water-plant operation than in the enterprising city of Independence, Kans.

Improvements Since 1906

Here is a plant that started out in 1906 as the last word in steam-powered facilities. Gradually, over the years, the gas engine took over, first as standby equipment and later as the primary power source. At last report, a steam-powered unit is being kept only for standby purposes and its life in that respect is expected to be comparatively short.

Back in 1906, when the Independence water plant was brand new, the city fathers and citizens alike were proud of the big, impressive reciprocating steam engines that provided them with water.

Six years later, when the original equipment was augmented by another steam-pumping engine of two-million-gallon capacity daily, the governing body in Independence was certain that its worries about an adequate water supply for a rapidly expanding city were at an end for some time.

In 1938, the city fathers decided to depart from the use of steam and to purchase a Cooper-Bessemer gas engine, to be used as standby equipment. There were many then who viewed this change as "a passing fancy" in much the same manner as dyed-in-the-wool railroad men laughed at the ravings of those who predicted the diesel would some day take over from the smoke-belchers.

However, it didn't take the new arrival very long to prove its worth, for in the following year a second Cooper-Bessemer gas engine was moved in and the main steam unit took the back seat as standby equipment.

Gas-Diesel Installed in 1946

The latest transition took place in 1946, when a Cooper-Bessemer gas-diesel was installed, and Independence officials began to look with critical eyes on the vast space the old steam unit was taking in the plant.

It seemed logical to them that if the three Cooper-Bessemer engines could be operated in the space formerly occupied by only one steam unit, that perhaps the removal of the last remaining steam unit would give them more than enough space for two more gas-diesels, if that many more became necessary to take care of the fast-growing needs of their thriving city.

Operating Record Scanned

Over and above the space-saving advantages, which certainly are no small item when calculated on the basis of today's building and plant-expansion costs, the city officials were also scanning the operating and maintenance records of their modern power units.

The record disclosed, for example, that in 1937, repairs, oil, grease, waste, boiler compound, and fuel gas for the steam unit cost the city $6,808. In 1947,

the Cooper-Bessemer engines cost $5,528 for repairs, oil, grease and fuel.

The difference of $1,280 in maintenance and operating costs did not appear to be too significant until the plant's production record was also taken into consideration. In 1937, the record disclosed, the plant pumped 413,291,000 gallons of water, while 10 years later, in 1947, the total gallonage pumped was 639,619,000, or about 35% more than the steam unit pumped.

In other words, the steam-unit maintenance and operating cost was about $16.47 per million gallons pumped, as compared with about $8.64 per million gallons pumped by the Cooper-Bessemer equipment.

During July of 1946, with the steam unit in service, 69 million gallons of water were pumped at a total fuel cost of $560.10. In July of 1947, when the gas-diesel was in operation, 66 million gallons were pumped at a fuel cost of $346.96, a saving of about 38%, despite recently risen fuel costs.

Modern Units Maintain More Pressure

Another advantage of the modern power units is that they maintain 7 pounds more pressure on the city's water mains, which also should be considered in connection with their fuel costs.

The new gas-diesel unit is currently driving a 3,744,000-gpd Worthington pump, while the two gas engines each drive a 2,001,000-gpd Worthington. The Allis-Chalmers steam-crank-and-flywheel unit is rated at 4,000,000 gpd.

The centrifugal pumps are all equipped with Fisher governors, which are simple in operation. They are set to open when the pressure exceeds 75 pounds, a factor which controls the speed of the driving engine.

Plant officials are contemplating replacing the steam pump with an electric motor-driven pump which will kick in automatically if the pressure drops.

The present average daily water use at Independence is about 1,700,000 gallons, with a maximum of over 3,000,000 gallons.

6,000 Hours Before Head Was Removed

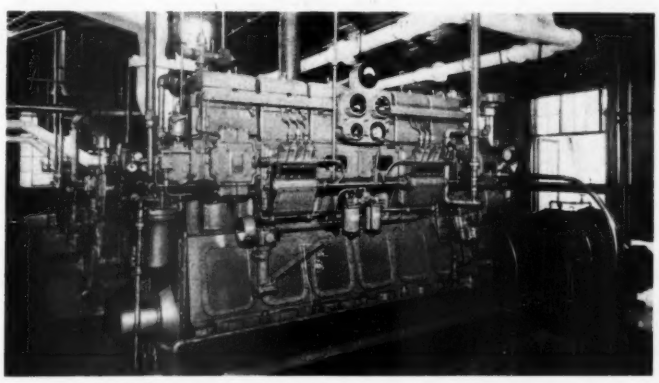
The gas-diesel in the Independence water plant had been in operation about 6,000 hours before the head was removed for the first time, according to plant engineers. The gas engines, at last report, were still running with their original liners and bearings and the original wrist pins. Some of the original valves were still in. Earlier this year, however, rod bearings had been replaced and a new liner had been installed.

At the present writing, the Independence water plant is free of debt and has a $150,000 cash reserve. It operates as a separate utility under the supervision of George M. March, City Manager.

In addition to its efficiently operating water plant, Independence has many other facilities to boast about. Independence is the second healthiest city in the nation. In Kansas it is tops in health.

It has a tax-maintained health center, a population of 12,000, and is the county seat of Montgomery county. It is recognized as a leading center of agriculture, has numerous manufacturing plants, is an important oil-and-gas-producing center, and is rapidly expanding its dairying activities.

Independence was founded in 1870 and has expended over $10,000,000 in public improvements in the last 75 years.



A view of the Independence municipal water plant, showing the newest power unit, a Cooper-Bessemer Type ENB-6-cylinder gas-diesel engine driving a 2,600-gpm pump. The engine is rated at 167 hp. The plant also has two gas engines.

Why They Use Voting Machines

VOTING machines have so many advantages as opposed to the outmoded but still persistent paper ballot that it is surprising that they have not yet attained nation-wide use. The two obvious objections are first cost and infrequent need. Set against these are such advantages as were listed by Arnold E. Furlong, Director of the Budget of Waterbury, Conn., in response to a survey recently made by this magazine. They are: faster voting, fewer election people, speedy report of votes cast, and almost negligible upkeep cost. Here are a few remarks on machine voting from letters to THE AMERICAN CITY.

"We now have 310 voting machines and we hope that all our Detroit districts will some day be handled by machines."—*Thomas E. Leadbetter, City Clerk, Detroit, Mich.*

"The Town of Glastonbury, Conn., has used voting machines for a long time. They have made voting easier."—*Donald H. Potter, First Selectman.*

"I can remember it was with some reluctance that I accepted the voting machine when it was introduced in 1923. The arguments for it are that there is less chance to spoil a ballot, people vote more quickly, and the results are obtained more quickly."—*George W. Welsh, Mayor, Grand Rapids, Mich.*

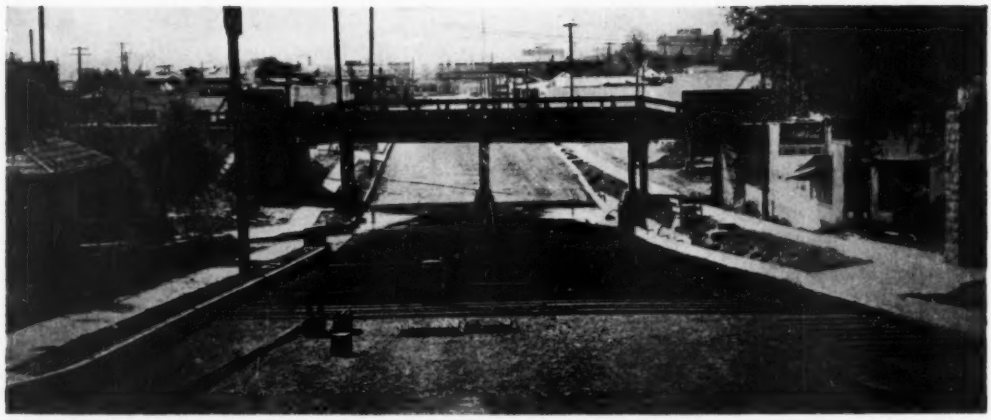
"The County of Rock Island, Ill., has used Automatic voting machines for a number of years. We now have the returns in this office by nine or ten o'clock where before it would be four or five a.m."—*Samuel A. Mullinix, County Clerk.*

"We are now able to announce complete election results within an hour or two of the closing of the polls. We find that the machines are foolproof, efficient, and speedy."—*Willard M. Sonnenburg, Mayor, Sheboygan, Wis.*

"The returns are counted quickly and accurately, there is no confusion at the polls, and the voters readily understand the proper use of the machines."—*Joseph A. DePaolo, Jr., First Selectman, Southington, Conn.*

"Yonkers, N. Y., has used voting machines for 40 years. We have had only two or three cases where the vote was not properly recorded and in none of these cases were the election results affected."—*Francis J. Healy, City Clerk.*

***Commemoration Through Community Services*, a handsome brochure on living memorials, is available from *The American City*, 470 Fourth Ave., New York 16, N. Y., for $1.00.**



These wrought-iron pipe coils go into a steep stretch of roadway in Klamath Falls, Ore., to keep it clear of ice and snow in winter. Water heated in a natural hot spring circulates through the pipes laid in the concrete of the street.

RADIANT HEATING Keeps Street Clear of Snow

Natural hot spring in Klamath Falls, Ore., provides the heat for water pipes laid in concrete

WHEN snow and ice arrive in Klamath Falls, Ore. (population 16,093, 1940 census), there will be at least one key section of streets that will not be affected. This year it is being protected by the first application of radiant-heating principles to a public road. Hot water, heated in an underground spring and circulated through a network of welded A. M. Byers wrought-iron pipe laid in the concrete, provides the protection. The stretch of roadway is four lanes wide, and 450 feet long with an 8% grade. The heating arrangement will automatically melt up to 1 inch of snow or 1/10th inch of ice per hour.

The stretch of all-weather heated pavement is on the Dalles-California Highway leading into Klamath Falls from the north. It passes under the Southern Pacific Railway viaduct and a few hundred feet further crosses an irrigation ditch, thus necessitating a grade steeper than would be normally used.

Was Developed by State Highway Commission

Work was started on the road late last spring after the drilling of a 10-inch well that struck a good flow of hot water at 390 feet. G. S. Paxson, bridge engineer for the Oregon State Highway Commission, developed the idea for the winter-proof highway.

The hot well-water itself is not run through the roadway piping. Instead, a coil of 2-inch pipe is submerged deep in the well-water, which tests at 190° F. A pump sends ordinary water and anti-freeze through the well coil, where it is heated or reheated to not less than 160 degrees.

A 2-inch pipe runs from the well to the pavement, and then parallel to the road for a distance of about 400 feet. In the pavement slab are embedded 15,000 feet of ¾-inch wrought-iron pipe, made up into one grid for each of a series of 30-foot road panels. Each of these 15 panels is connected with the 2-inch water main by valves.

Wrought-iron pipe was used in the installation because of its resistance to corrosion, and because its coefficient of expansion is virtually the same as that of concrete, thus keeping the bond and minimizing the danger of cracking the concrete.

The 2-inch main and the series of grids comprise a closed circuit through which heated water is pumped, the valves insuring an even flow of water through each grid. Thus the whole 8-inch slab of road concrete is warmed to snow-melting temperature.

Thermostat Control

The pump, thermostatically controlled, automatically begins to circulate the water when air temperature drops to freezing and continues to operate until the temperature rises above freezing. Another pump draws water from the well, since it loses its heat value as the cool water flows from the road through the heat-transfer coils.

This type of outdoor radiant heating has been used in private work to a limited degree elsewhere. The only difference has been that a more conventional source of heat, such as the standard boiler, has been employed. A private road was opened last winter at Belmont, Mass., near Boston, and the American Cyanamid Company plant at Bridgeville, Pa., has a 600-foot long, two-lane driveway protected by embedded wrought-iron pipe coils. A New York City department store keeps its sidewalks free of snow by this method.

The natural hot water at Klamath Falls is widely used by the residents. It has been tapped to heat 400 homes, a swimming pool, two hospitals, a high school, a new office building, several apartment houses and business buildings, and a newly constructed $3,000,000 veterans' hospital. It is used for sterilizing dairy and soft-drink bottles. Ranchers outside the town use it to heat their poultry sheds and greenhouses, and to warm drinking water for their stock.

The town enjoyed the hot mineral springs, once used by the Indians, until they dried up after the San Francisco earthquake of 1906. Geologists believe the water is heated either by hot underground lava or by chemical action.

PUBLIC HOUSING MEASURED—

3 Criteria for Success

By J. S. FUERST
Chief of Statistics
Chicago Housing Authority

NUMEROUS studies have been made in urban areas such as New York, Philadelphia, and San Francisco, showing that slums cost the taxpayer more than good housing. Samples have been taken of areas in slum districts, together with areas in good residential districts, and the overwhelming mass of data has proved that in terms of health, fires, and social disorganization such as adult crime, juvenile delinquency, and illegitimacy, the slums cost the city far more than the good housing. Very little, however, has been done to show specifically what, if any, improvement takes place when these slums are replaced by public low-rent housing. It is this type of material that we are presenting here.

In Chicago, where public housing projects have existed since the beginning of the national housing program in 1937, and where there are now 8,000 such dwelling units, a series of studies has been initiated to measure the success of public housing. The primary purpose of the following analysis is to present these studies as a stimulus for additional studies of the same kind. In some of the studies conducted the material is suggestive rather than conclusive, but it points out the road for further examination.

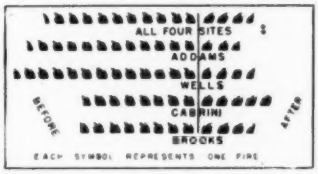
At the outset, casual observation shows that public housing provides certain benefits not available in private rental housing. Public housing caters to children; in Chicago 60% of project residents are under 20 years of age as compared with around 25% in the city as a whole. Public housing provides rentals in direct relationship to income, and rentals that are approximately one-half of the rent asked by private operators of comparable housing. It raises the standard of living by leasing apartments to families with more children at lower rent than it asks from smaller families with the same income. Public housing, in the design of its living units and in its provsion of play areas and general community space, makes possible civic and educational activity that is bound to raise the standards of the people.

Studies conducted in Chicago during 1948 pointed out some of the results of these practices of public housing. The studies covered are: (1) tuberculosis mortality during a three-year period in public housing projects as compared with surrounding slum areas and as compared with the tuberculosis mortality for the city as a whole; (2) the incidence of fires in public housing projects during the period of their existence as compared with the incidence during a similar period on that same site prior to the year the projects were built; (3) school attendance records of children of the projects and surrounding slum areas.

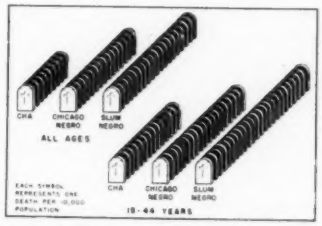
Tuberculosis Mortality

The survey of tuberculosis mortality showed that there were 31 deaths in two projects in a three-year period, or an average of 10.3 persons per year out of a population of 11,000. This is an annual tuberculosis death rate of 9.3 persons per 10,000 as compared with a death rate in the surrounding slums of 19.2 per 10,000.*

* Although tuberculosis mortality rates are customarily figured on a basis of 100,000 population, these comparisons have been figured on a 10,000 basis because the total population of the projects concerned was only 11,000.



Fires before and after building public housing.



Annual tuberculosis death rate for three groups in Chicago, 1944-1946.

The survey covered the years 1944-45-46 for two of the largest housing projects in Chicago, populated by 11,000 Negroes. The study was focused upon Negroes because the death rate in this group in Chicago is almost four times as high as it is in the white population. While only one out of 10 persons in Chicago is a Negro, nearly four out of 10 tuberculosis deaths occur among Negroes.

The survey also found that the rate of tuberculosis mortality in the two projects studied and in the age group from 15 to 44 years of age—the age group of highest tuberculosis incidence—was 143, as compared with 244 for the surrounding slum area. This difference was tested and found to be "statistically reliable." The comparability of the two groups—the population of the slum area and the population of the projects—can be easily established. As has been mentioned, the public housing program has as a condition of eligibility the fact that the tenants come from slums or sub-standard dwellings. Low income is also a condition of eligibility, the maximum income for admission to public housing projects in Chicago being $2,150 per year for a family with three or more minor dependents. Not only are tenants accepted regardless of health limitations, but, because of the close association between the public housing agency and health and welfare agencies, public housing is used as a special resource for families known to welfare agencies.

The Fire Record

A second study was made on the number of fires that took place in those projects whose sites had previously been occupied by slum dwellings. It might reasonably be expected that fewer fires would occur in new housing than in old. Many opponents of public housing, however, contend that it is people who make slums. They claim that the provision of good housing for slum dwellers will not reduce fires appreciably.

The facts, however, are quite different. In the four projects studied, which contain upwards of 4,000 units, an average of 3.6 fires occurred annually during the period that the projects have been in existence. The same sites, on which there were considerably fewer than 4,000 dwelling units before the projects were built, had an average of 11.6 fires per year. For example, the fact that the tenants come from slums eight years, instead of 12 fires per year, as was true for the buildings previously occupying the site, had fewer than four.

This means that, given a widespread re-

housing program, the number of fires in a slum area could be expected to reduce by more than two-thirds. It is unnecessary to point out that with such a development it would be possible to lower the amount spent for fire fighting and to enable a reallocation of the fire stations in accordance with the newer distribution of fires. While it might not be possible to reduce the fire fighting by two-thirds, there can be no question that a reduction in the slums would mean a substantial reduction in the fire-fighting budget.

Not only have the number of fires decreased but, whereas the tar-paper shacks and dilapidated frame structures in slums are frequently entirely wiped out, together with the possessions of the families living there, the kinds of fires that occur in the housing projects are very minor. In these projects the usual fire—a burned curtain or wastebasket—is an inconsequential one, causing little damage. In only one case was there as much as one room destroyed.

It may be argued that what is proved by these facts is that there are fewer fires in new, fireproof, well-constructed housing than there are in slums. This is true. The fact that fires have been reduced appreciably in public housing indicates, however, that this *does* happen under public housing as well as under private housing—a fact all too frequently left unmentioned. Moreover, at the present time virtually nothing of real consequence is being done by private housing to clear the slums and erect new housing at rents low-income families can afford; so that without the public housing there would be no reduction of fires in the slum areas.

School Attendance

The third study relates to school attendance. The statistics from this study are not so conclusive as from the other studies, although they do suggest that children from the projects had fewer unexcused absences due to illness, truancy, and poverty.

The study covers the unexcused absences during the school year 1947-48 for children living in the projects and children in the area immediately surrounding the projects. Unexcused absences are a fair indication of social maladjustment. Children are absent without excuses either because of truancy, because of illness, or frequently because they do not have adequate clothing to wear.

If it could be established that unexcused absentees were sharply reduced when the children came to live in the housing projects, it could be concluded that health was improved, but there was less truancy and consequently less referred to juvenile court, and that general economic and social standards in the families were being raised.

In the study, which covered 4,400 children in the projects and a total of 13,300 children, it was found that whereas 33% of the children in all of the schools studied came from the projects, only 27% of all unexcused absences were caused by children in the projects. In some of the projects the difference was even more marked. For example, in one of the schools studied, 43% of the children came from the project, and only 28% of the unexcused absences came from the project. Although there is some indication that children from the projects cause less absenteeism than those in surrounding slum areas, the evidence is not statistically conclusive.

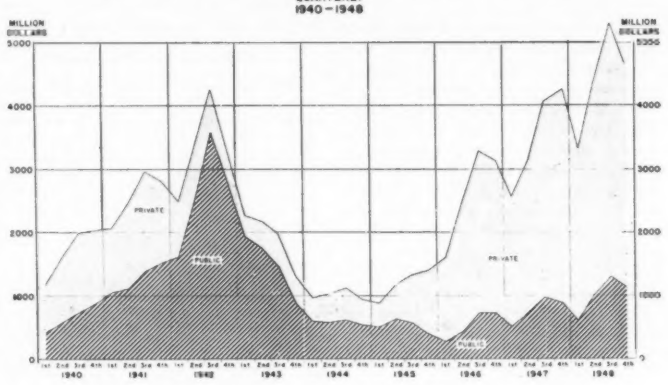
Even though the raising of their standards of living is not reflected decisively in the measurement of unexcused absenteeism, there are indications from the increased participation of tenants in community activities and in unofficial reports from social workers, probation officers, school officials, and health officers that standards are higher among tenants of the housing projects than among residents of surrounding slum areas.

It is not maintained that housing alone has improved the condition of these families. It is at least in part a result of the surrounding resources that are made available to the tenants of *public housing* because of the contact between the housing projects and the welfare and educational agencies.

These three surveys are just a beginning. Studies are now being conducted along the same lines to investigate the incidence of juvenile delinquency as measured by court appearances and on infant and maternal mortality. In addition, comparative studies of public housing projects and large private housing developments, in terms of construction and operational costs are being carried on, and it is expected that these will provide very significant information as to relative efficiency of government-operated programs. (Preliminary results in this area are already available.) Finally, studies are needed of attitudes of families living in public housing and in surrounding districts to show sentiments toward public housing.

National Construction Trends To Guide Local Public Building

ESTIMATED NEW CONSTRUCTION ACTIVITY IN THE UNITED STATES
QUARTERLY
1940–1948



THE chart above, prepared by the Office of Economic Research, Federal Works Agency, shows public and private construction activity in the United States during 1948. A forecast of the 1949 construction situation is presented by J. W. Follin, Assistant Administrator of the Federal Works Agency in the December issue of *Public Construction*.* Mr. Follin declares:

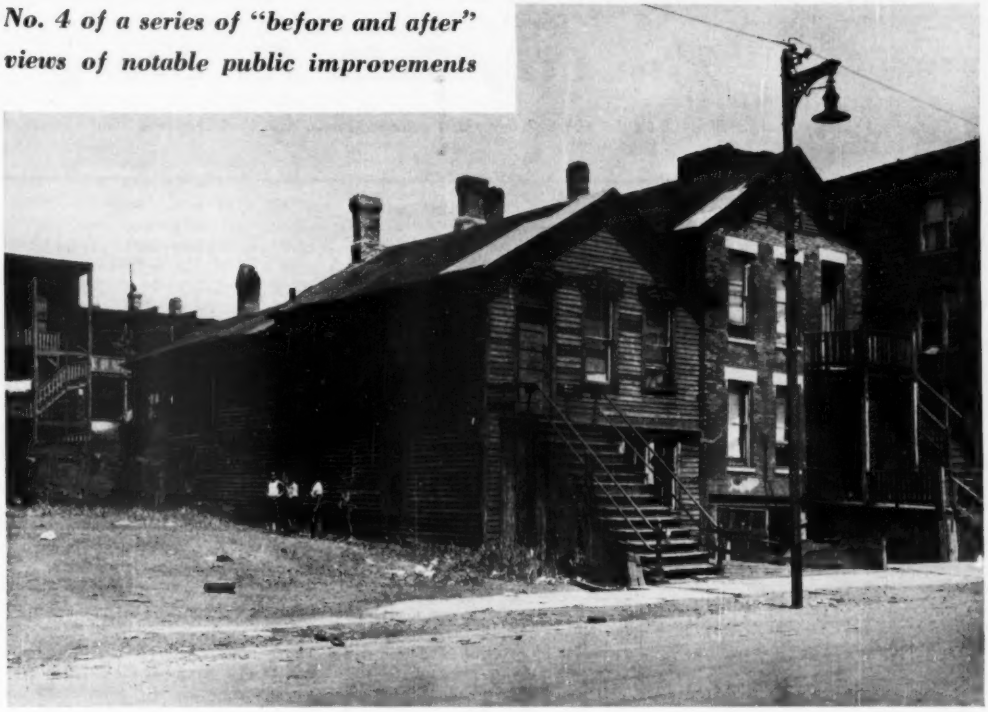
The most significant changes anticipated for construction in 1949 are divergent trends in public and private construction. It is expected that the value of public construction will increase by close to 25%, whereas private construction may decline moderately. Consequently, the total dollar value is expected to increase only slightly over the 1948 rate.

Of an assumed total volume of $18,250,000,000, public construction could account for as much as $5,000,000,000. The public portion represents 27% of the total, whereas it was only 23% in 1948. However, this is still considerably short of the close to one-third-to-total ratio averaged in the two decades prior to the war. It appears that state and local public construction volume at $3,300,000,000 will considerably outweigh federal construction estimated at $1,700,000,000.

National trends may not apply to any particular municipality, where local conditions differ from the national picture. However, local officials should appraise and re-examine their own construction situations with the help of such general national forecasts.

* Published by the Office of Economic Research, Federal Works Agency, Washington 25, D. C.

No. 4 of a series of "before and after" views of notable public improvements



As Was—And As Is—

The Ida B. Wells Houses, in Chicago, and the slums that they replaced—typical of the improvements described by J. S. Fuerst in the foregoing article.

Municipal Public Relations

The City Tells Its Story

By HENRY DAVIS NADIG, *Director of Public Relations, New York Regional Plan Association*

Some notes on MPR progress

AS THIS is written, at the start of the New Year, it looks very much as though 1949 may be a significant year in the growth of Municipal Public Relations as a carefully practiced, deliberate operation of municipal government.

This is no effort to prognosticate what 1949 may unfold. Yet as 1948 moved to a close, there were increasing indications that both municipal officials and far-thinking citizens in many parts of the country were beginning to think quite seriously about official MPR as the city's only really satisfactory method of telling its story.

Progress in 1948, pointing up the potentialities of 1949 for MPR, may be noted as follows:

1. Rising interest in the simplification and popular presentation of municipal reports;
2. Streamlining of MPR activities in several cities under a single individual or department;
3. Recognition of the importance of MPR by the American Municipal Association and the National Municipal League;
4. Enthusiasm expressed by MPR men throughout the country for establishment of an Association of Municipal Public Relations Officers, and
5. Increasing recognition in the press that there is a place for proper MPR.

One or two examples of each of these points will suffice for review purposes:

1. The superb job being done in publications by Kansas City, Mo., and Norfolk, Va.;
2. The establishment of an MPR department by Dearborn, Mich.;
3. The statement of policy by the American Municipal Association at its December meeting in Washington (this you may read elsewhere on these pages);
4. The statement from D. G. Weiford, MPR man for Norfolk, Va.: "Frankly, I am inclined to be very enthusiastic about such an association, and I would be eager to serve in any capacity whatever. The need for such an organization is long overdue." The statement from Harold S. Rand, MPR man for Rochester, N. Y.: "The formation of an organization of municipal public relations officers is a much-needed step toward better municipal public relations policy. We, as the workers in this newest of municipal functions, will benefit. The municipalities, too, will derive very real benefits therefrom."
5. The press coverage given the author's statement at the National Municipal League Conference last November and a significant editorial in *The New York Times* (reproduced on the next page).

New York's opportunity

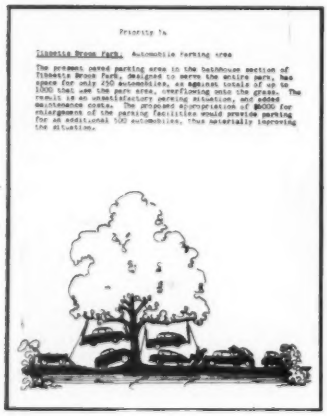
If, as I heard a few maintain during 1948, official MPR is only good for the large cities (a point with which I do not wholly agree), the largest city in the country has the greatest opportunity to make use of and profit by official MPR!

New York City's failure to tell its story adequately to the people (as pointed out by *The Times*) is as striking, by contrast to the excellent municipal story-telling being done in several other major cities, as is its failure to solve its traffic and parking problem, likewise in contrast to what is being undertaken in that field elsewhere. The very size of the world's greatest metropolis up to now seems to have been too overwhelming for those who have been concerned officially with the city's growth and development.

But if New York City as yet has not seen fit to evolve an official concept of municipal public relations and to have followed through with streamlined operation of MPR activities, it is, as *The Times* editorial points out, encouraging to note that several of the municipal departments of the city government are waking up to the importance of informing the citizens clearly and thoroughly.

There will, very likely, be more of this departmental activity during 1949. And it is not outside the realm of possibility that one of these days the Mayor and Council may take into consideration the practical values of official Municipal Public Relations, and then provide for a setup that will make for the most economy in telling New York City's story.

It would not be surprising, as recognition of the need to tell its story grows,



Priority 1a

Tibbetts Brook Park: Automobile parking area

The present paved parking area in the bathhouse section of Tibbetts Brook Park, designed to serve the entire park, has space for only 450 automobiles, as against totals of up to 1000 that use the park area, overflowing onto the grass. The result is an unsatisfactory parking situation, and added maintenance costs. The proposed appropriation of $6000 for enlargement of the parking facilities would provide parking for an additional 500 automobiles, thus materially improving the situation.

Priority 4

WHITE PLAINS: Acquisition of Land

This proposed appropriation will provide for the acquisition of a parcel of land, 10h acres in area, lying at the southerly boundary of the airport upon the end of the northeastmost runway. The thoroughfare studies of the Department of Planning have for some time ind ated a revision in locations previously shown for main thoroughfares encircling the airport, so as to permit future expansion in keeping with the growing importance of the airport, both for commercial flying and as a base of the new York Air National Guard. The proposed acquisition is in full conformity with, and to furtherance of, such expansion, and will make possible the future extension of the northeast-southeast runway from its present length of 4750 feet to a length of 7,000 feet, with 1000 feet of overrun at each end. The land in question can be purchased at a favorable price at the present time, a situation that might not obtain in the future. It would seem to be good business to seek advantage of the favorable opportunity to acquire the land at this time, as part of a program of inevitably necessary airport expansion. It is expected that a grant 45% of the cost of acquisition can be obtained from the federal government.

Two of the many illustrated pages of the 24-page mimeographed capital program of the Westchester (N. Y.) County Department of Planning.

if New York came up before long with a motion picture on the city. Such a film has been suggested by Bernard F. Gimbel, president and chairman of the Board of Directors of the New York Convention and Visitors Bureau, Inc.

Speaking at a meeting of business leaders and city officials last December for discussion of cooperation between industry and the city in a campaign to sell New York's advantages, Mr. Gimbel urged that a motion picture be made. Having called attention to the fact that several commercially produced films describe New York, he said:

"A city the size and importance of New York cannot, without a certain degree of embarrassment, continue to use a commercially sponsored motion picture as a substitute for one of its own."

Mr. Gimbel recognized also the unlimited possibilities of the non-commercial film for use before schools, clubs and associations.

It is interesting to note, in view of the preceding paragraphs, that municipal motion picture filming also has been done elsewhere, in this country and abroad. Last fall New Orleans completed production of a 30-minute color-sound film outlining the advantages of the Crescent City. This motion picture was produced by the City Government of New Orleans in cooperation with the local Board of Port Commissioners and the Association of Commerce.

The Public Relations Section of the City of New Orleans informs me that the picture has been designed for use throughout the United States and other English-speaking nations, and that a Spanish sound track has been added to help further the New Orleans trade and tourist program in Latin America. It is being exhibited in New Orleans at schools and civic clubs "to advance a fuller understanding of the city's life by the people of New Orleans."

New Yorkers concerned about the maintenance of their city's prestige in trade and commerce will be interested to know that about half of the footage of the New Orleans film is devoted to a study of the economic and trade advantages of New Orleans as an air and sea gateway for the Mississippi Valley, as a manufacturing center, and as an important financial and business capital of the South.

CITY PUBLIC RELATIONS

We have long felt that the New York City Government failed, just as other big business has failed, to tell its story adequately to the public. It is a pleasure to note, therefore, that several departments are doing a better job in public relations than formerly. We believe the people have little understanding of the extent and diversity of services performed for them by their municipal government

The Board of Transportation started publication, a few weeks ago, of a weekly news sheet of several pages that gives a digest of actions by the Board. It is written under the direction of William Jerome Daly, secretary of the Board, who used to be a newspaper man himself, and a good one. Some of this finds it way into the news columns of our papers, and the balance of it is useful to editorial writers and others who wish to keep informed.

The Sanitation Department, an old whipping horse of the public, is also doing a better job of public relations in several ways. By setting up regional complaint bureaus and publicizing the telephone numbers it is making itself more available to the public. It moved promptly to give the facts and figures on its record of disposing of the recent heavy snow.

On another front, the retiring Commissioner of Hospitals gave a very complete summing up of conditions in the hospitals. The New York City Housing Authority has steadily provided full information of its activities. So has the Park Department Since Commissioner Hilliard took over in the Welfare Department the public has received monthly statistics which are useful.

This is not a complete roster But it illustrates what we hope is a trend A better informed public is a necessity for healthy democracy, and our city governments will benefit by providing, frankly and honestly, of course, more information about what they are doing

The *New York Times* recognizes the importance of MPR in this editorial, which appeared December 31, 1948.

And the county, too

If you check up on the definition of the word *municipal*, I think you'll agree we are justified in discussing MPR from the county angle as well as from that of the town, village, and borough.

The importance of county government varies in different parts of the U. S. In some areas the county is all-important, functionally, and plays a dominant part in affairs political, economic, and social. In other areas county government exerts little influence on the lives of the citizens.

As an example of each of these extremes, probably the sharpest contrast you could find would be between New York and New Hampshire. Whereas legislation has tended to enhance the importance of the county in New York, there is actually a strong movement afoot in New Hampshire to abolish the county as a governmental unit because of its costly overlappings in the Granite State.

If there is any place where county government is virile and vital, it is Westchester County, N. Y. The progressive character of county administration in Westchester has too many ramifications to be talked about here in detail, but the manner in which the Westchester Department of Planning livened up its 24-page capital budget program for the County, is an MPR item of importance.

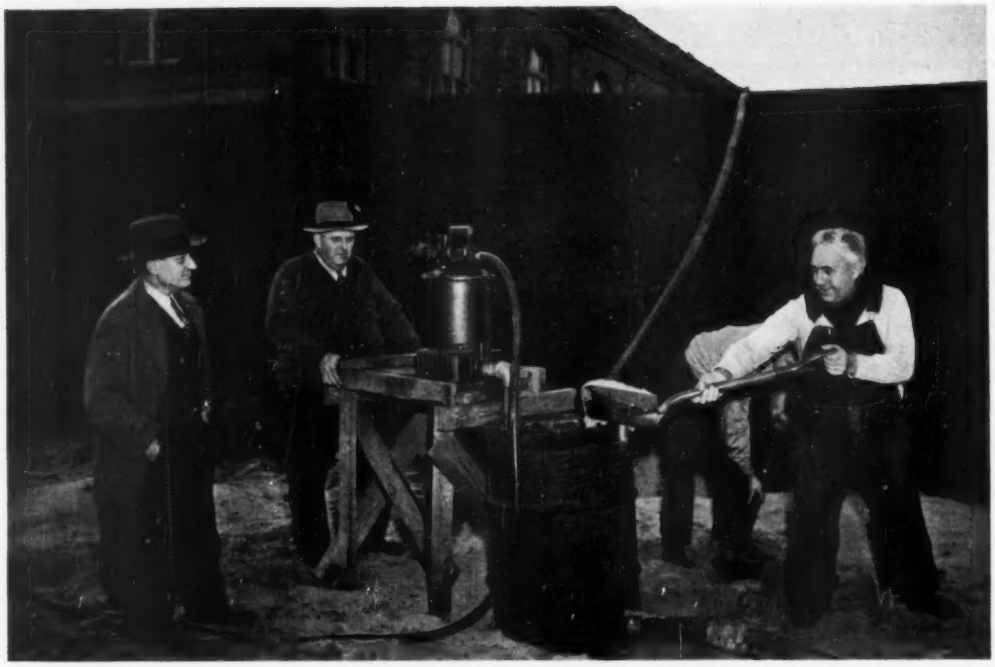
To the average man, nothing can be much drier than reading a detailed capital budget. To overcome this normal human resistance to solid words and figures, Hugh R. Pomeroy, Director of the Westchester Department of Planning, simplified and illustrated the program the Department was required by law to submit to the Supervisors, the County Executive, and the Budget Director.

After the two-and-a-half-page letter of transmittal, the reader comes upon a neatly arranged summary priority list of 19 projects. When he gets to page 4 of the text, a half-page illustration quickly piques more interest. Boiler replacement at an incinerator has No. 1 priority, and the picture effectively shows a boiler bursting at the seams, held up by a saw-horse and dated 1917.

So on through the remainder of the 24 mimeographed pages the reader finds the county's capital-improvement needs dramatized in a total of 17 of these clever and appropriate illustrations. This is a technique in capital-budget presentation worthy of extensive use. Mr. Pomeroy and his staff deserve a good pat on the back for their initiative.

A program of public relations is needed in each municipality to tell what the government and its employees do and why they deserve the respect and recognition of the people whom they serve from day to day. A program of public relations must also keep the avenues of communication open so that appropriate municipal personnel may keep accurately informed concerning the desires and the attitudes of the citizens whom they serve. —Final paragraph of the statement of policy: "Creating Respect and Recognition for Municipal Officials," adopted last December by the American Municipal Association.

A NEW METHOD for cleaning settling tanks



Director Fred Piper, and his assistant, P. Meissner, supervise a filter-bed rebuilding operation. The same pumping equipment handles the settling basin cleaning works.

Niagara Falls, N. Y., Water Department adopts air-operated sludge pump to de-muck a settling basin and to rebuild sand filters

By FRED V. H. PIPER
Director, Water Department
Niagara Falls, N. Y.

FOR the first time since their construction 38 years ago the overloaded filtration plants of the Niagara Falls Water Department have been given a thorough overhauling. In addition, work will start as soon as feasible on a new 32-mgd filtration plant, a new pump station and a new chemical building. This will bring the total capacity of the filtration system to 70 mgd. The present system consists of Plant No. 1, operating at 40 mgd (about 25% above rated capacity), and Plant No. 2, at 9 mgd.

Each is historic in its way. No. 2 Plant was originally owned by the Western New York Water Company, and was the first plant to use liquid chlorine. It was at No. 1 Plant that the Mathieson Alkali Works, Inc., of Niagara Falls, did its experimental work with chlorine dioxide.

Raw water is supplied from the Niagara River. At Plant No. 1 it enters the pump house by tunnel and, when needed, by a pipeline as well. The raw water enters a low-lift suction well, from which it is lifted to the filtration plant by five pumps: two Allis-Chalmers 6-mgd and one 12-mgd; one 12-mgd De Laval, and one 6-mgd Peerless vertical pump.

New Basin-Cleaning Technique

A unique basin-cleaning job will be performed in the pump house as soon as the rehabilitation of the filtration plant is completed. The suction well from which the low-lift pumps draw has never been cleaned. It is known that at least 2 feet of sand and silt have accumulated. The problem has been to remove the muck without shutting down the plant. At one time, when we were discussing it and considering installing a big compressor, R. W. Ringle, local representative of the Chicago Pneumatic Tool Company, happened to be present. He said he believed he carried an air-operated sludge pump that would do it, not only without shutting down the plant but without stirring up the muck. The pump was delivered and it worked. After two hours' operation we knew it would do the entire cleaning job. It took out the silt without agitating the water.

We did not carry through the demucking job at that time because we

were fully occupied with rehabilitating all our filters with our own forces. From October 27, 1947 (date of my appointment as Acting Director of Water), to February 23, 1948, we rebuilt the fourteen ¾-mgd filters of Plant No. 2. On the latter date we started rebuilding the 24 filters of Plant No. 1. These consist of sixteen 1-mgd units furnished in 1911 by the International Filter Company (now Infilco, Inc., of Chicago), and eight 2-mgd units from the Norwood Engineering Company of Lawrence, Mass. The latter eight were finished up in October, when we started on the year's task of overhauling the million-gallon filters. None of these 24 filters had ever been overhauled in their 38 years of service.

The 2-mgd jobs have Wagner bottoms on which are laid successively 6 inches of coarse 2½ to 1 inch of gravel, at bottom, 2½ inches of medium 1- to ½-inch gravel, 2½ inches of fine ½- to ¼-inch and 3# extra fine ¼- to ⅛-inch gravel, and 27 inches of sand. All this material was dug by shovel from each filter and washed and screened for the four sizes of gravel.

Another use has been found for the pneumatic sludge pump—pumping filter sand. The sand is pumped 225 feet at street level from the sand storage box from which the filters are supplied. The pile of sand, on street level, is 10 feet below the elevation of the box. When the sand in the box is used up, the pump is started and sends a new supply of sand up the grade to the box which is 14 by 14 feet by 5 feet high.

Sand Shoveled Into Drum

The pumping set-up consists of a 55-gallon drum into which the sand is shoveled, and kept in suspension by a water stream from a 2½-inch fire hose. The pump inlet extends down to the bottom of the drum. The 65-gpm (50-foot head) pump is supplied by a 105-fpm compressor, the hose being attached to the top of the pump. The air passes through a Venturi, forming a vacuum, which causes an inlet check-valve to open and admit the sludge. This causes a float inside the pump to rise up, closing the air-control valve and cutting off the air that has passed through the Venturi. The air is thus directed onto the sludge, forcing the inlet duck-valve to close and the outlet check-valve to open, completing one pulsation or cycle. With the ejection of the material, the float has returned to the bottom of the tank, opening the air control and beginning another pulsation, or cycle, of the pump. The pump will handle at least 15% solids. It will handle sand, small gravel, bits of rock, ashes, etc. The pump can be used with or without a suction inlet hose, as when used to clean catch basins.

Raw water from the pump house enters the forebay at the filtration plant, where filter alum (General Chemical Company) is fed by dry feeders. When algae are present, copper sulphate is dropped in to the forebay. Chlorine (Niagara Alkali Company) is then fed by Wallace & Tiernan chlorinators for prechlorination.

The water then enters the two coagulating-and-sedimentation basins, flowing at 0.28 foot per second for a retention period of 2.9 hours. The next stop is at the filters, and thence to the clearwell under them. Chlorine dioxide is fed into the clearwell. This chemical is made by the reaction of strong chlorine water with sodium-chlorite solution.

To Covered Reservoir

The water flows by gravity to a 4-mg covered reservoir by way of a control tower. Closing the valves of this control tower sends the water straight to the pump house; otherwise the pump house is supplied by the reservoir. The height of the water in the ¾-mg basin under the high-lift pumps is controlled by a Builders-Providence float valve. Eight 6-mgd high-lift pumps send the pure water into the distribution system. There are six Allis-Chalmers centrifugal pumps, one De Laval, and one Peerless vertical.

A Manning, Maxwell & Moore recording Duragauge carries a 24-hour chart of water pressure—a daily circle pretty close to a radius of 70 pounds' pressure. A Builders-Providence Chronoflo meter records the mgd rate throughout the 24 hours. A Venturi meter shows the amount of water going into the service mains in 24 hours. Readings are taken at midday and midnight.

All pumps are electric-motor driven. A city-owned high-tension building takes power from the Niagara Falls Power Company at 12,000 volts, reduced to 440 volts by two transformers supplied by two generating stations. Cables 181 and 182 feed from buses 1 and 2, and the pumps can operate from either service.

The extensive alterations and the proposed plant additions foresee requirements to the year 2,000.

DeQuincy, La., Renumbers and Renames Streets

As the result of a study by the local Chamber of Commerce, a program for renaming streets and renumbering blocks and houses has been carried through. Our population was 1,820 in 1920, and is now well over 5,000.

We recommended to the City Council that 10 streets be renamed, so that each would have the same name throughout the entire length of town. A railroad track running northeast and southwest through town was always used as a dividing point for streets running north and south.

Perhaps some day we will connect some of the streets over the railroad track. One street in particular had three names. It now has only one. We feel that the street-naming did simplify our system.

A street running north and south was named Division Street. Another running east and west, dividing the city into four sections, was named Center Street. Now all of our streets have a prefix designating North, East, South, West.

The point where Center and Division Streets intersect will be used as the starting point for block and house renumbering. This will allow for all future expansion or shrinkage.

The old system (and it was quite a system!) gave each addition or subaddition a code number which was the first one or two numbers of a house number. The next one or two numbers was the block number. Then came the actual house number. Thus we had a 98562 number one block from 403 number.

Under the new system there are 12 blocks north, 8 south, 12 east and 8 west.

The city is divided into 1/16th of land sections. We found that the ideal block system would be four blocks square to each 1/16th land section. Some of the city was thus divided. We are making all corrections so that on the land section boundaries all blocks will carry the same number. It was necessary, wherever a block was of unusual length, to make it into two.

We feel this new system will add much to our little city and make it convenient for strangers, delivery persons, and mail carriers to locate persons or homes.

Another project in hand is to set up a City Planning Commission composed of five men. These men will study the city in view of what could happen. Before any person or firm could subdivide land into lots, it would be necessary to get the approval of the commission. It would consider such problems as the width of streets, length of blocks, coordination of street entrances, sewerage, and utilities.

Billy Smith, *General Manager*
Chamber of Commerce
DeQuincy, La.

CITIES PLANNING NOW FOR

Next Year's Bug Blitz

LAST YEAR'S EXPERIENCE GIVES GUIDE TO THE FUTURE

By CHARLES M. REEVES
Pest Control Engineer and Consultant
San Antonio, Texas

THIS past summer, over 2,000 communities voluntarily undertook to liquidate flies, mosquitoes, and other pests both as a public health and economic improvement measure. So successful were these city-wide insect attacks that hundreds more cities are considering this program next summer.

Plans for insect-control work for next spring and summer must be laid within the coming months. A full campaign of periodical spraying and fogging, using foggers, motorized, portable, and hand sprayers, and helicopters and fixed-wing planes, can run into thousands of dollars for one community. Anti-insect programs require large quantities of insecticides, such as DDT, pyrenone, chlordane and pyrethrums and even larger quantities of solvents such as special fog oils, regular fuel oil, kerosene, or pre-mixed solutions. Just how much equipment or material depends on the type and extent of the problem.

A typical all-out job was the excellent campaign conducted by the City of Indianapolis, under the supervision of its Mayor, sponsored by the local newspaper, the *Indianapolis Star*. One entire week was set aside in July for an all-out blitz, in which the entire populace cooperated. The *Star* provided the DDT, while the city bought or rented the necessary equipment. Hand sprayers were used to cover 120,000 garbage cans with DDT; a helicopter sprayed huge dumps; a fog machine covered the garbage trucks and spread a DDT vapor through the residential streets.

Some cities employ knapsack sprayers to get into inaccessible heavy-breeding spots, like outdoor privies, and "fly cops" on motorcycles who shoot DDT solutions into sewer catch-basins with a special spray gun. Aerial fogging or spraying is considerably more expensive than spraying or fogging from a land unit, but is often necessary in areas of vast marshes or deep forests where vehicles cannot penetrate. Aerial fogging and spraying can run from $125 to $250 an hour.

Land machines also require jeeps, trucks, or trailers to transport them. Frequently, communities find they have the necessary vehicles in fire, police, or sanitation departments, so that additional investments aren't necessary. Likewise it frequently develops that employees of some municipal departments, like the fire department, have a lot of spare time which can be diverted to fighting insects. Boone, Iowa, is an example where fly-control work is done by the Fire Department.

In any case, insect-control work can range anywhere from $600 for a twice-a-season fogging of a small community like Amityville, L. I., $2,500 for a more thorough campaign as was conducted in Mason City, Iowa, or $9,000 for a land-water-and-air blitz such as we held for the entire month of June in the town of Webb in the Central Adirondacks.

Nearly every state finances a number of county or municipal mosquito control commissions, but their efforts are directed mostly towards permanent mosquito control. Most of their money and energy is expended in eliminating mosquito larvae where they breed by flooding ponds, filling swamps, cutting irrigation ditches so marsh water can run off to the sea, and coating stagnant pools with oil to asphyxiate the larvae. Little or no money is spent towards eradicating the adult mosquitoes which escape these mechanical control measures and visit communities en masse. County work, also, usually takes in outlying areas and rarely penetrates actual communities. Consequently, it is left up to the people themselves to put mosquitoes to rout in whatever way they can.

At Albany, N. Y., a boys' playground gets a going-over so the boys can swat balls instead of flies.

Armed Against Attacks

Two recent surveys made of the extent of city-wide and municipally controlled anti-bug campaigns indicate that some 2,000 communities have armed themselves against mass insect attacks. Jay Cee headquarters at Tulsa reports that 1,500 member branches have instigated successful city-wide anti-fly campaigns, aimed at reducing dysentery and other fly-spread diseases. This is the second season for this hugely successful campaign and next year's is expected to be even greater.

Todd Shipyards Corporation, manufacturers of the TIFA fog machine, the latest weapon to be used successfully against all types of insects, reports that at least 600 cities—in 45 states—either own fog machines or contract for regular service from "custom foggers." Many of the latter group have already indicated that they will eventually buy their own equipment, which they can operate much cheaper—at about $3.50 an hour—than it costs them to hire the service.

There is some duplication between Todd's and the Junior Chamber of Commerce list, possibly as much as 20%, but that still leaves 500 additional cities which have fogging service. They range from communities with populations of less than 500 in Texas, to two New York City boroughs with populations in the millions. The Borough of Queens, in New York, used police planes this summer for DDT-spraying over its vast marsh areas, and a fog machine for supplementary work in residential areas where planes cannot go. The Borough of Richmond gave up aerial spraying as too costly and dangerous and now uses only a fog machine for continuous service all summer. The City Housing Authority has its own fog generator which services all eight veterans' housing projects within its domain.

Texas is the state that leads in bug-consciousness, according to Todd's survey. Close to 50 cities actually own

machines, and three times that number contract for the service. San Antonio was the pioneer city in the United States to employ fog machines, having had three of the first ones made flown there in the summer of 1945 during its worst polio epidemic.

On the still unproven theory that flies may be vectors of the polio virus, other communities, such as Winston-Salem and other North Carolina towns, have followed San Antonio's example.

Florida, California, New Jersey, Illinois, and Iowa, in that order, are next in the extent of their city-wide anti-bug campaigns, each boasting of over 50 towns owning their own sprayers, foggers, or bug-fighting equipment.

Economic Advantages

Definite economic advantages accrue from fly- and mosquito-control work, judging by some of the comments made by authorities concerned with this work. The Chamber of Commerce of New Jersey, for example, claims that real-estate values in areas in which mosquito-control work is a regular thing have risen 55% more than those in uncontrolled areas. The Planning Commission of the town of Webb in the Central Adirondacks, a popular summer-resort section, maintains that their expenditure of $9,000 for anti-black fly work during the month of June paid back with a 20% increase in business all around. The brief summer season between the Fourth of July and Labor Day usually brings $5,000,000 to that area from vacationers, so the insect-control work should mean an additional million dollars in revenue.

How Webb Combatted Pests

The town of Webb employed a fogging helicopter and two ground foggers to cover a 4,000-acre territory. The permanent residents and businessmen of the town were enthusiastic about the results. The most expensive hotel in the community, which normally was filled to only 40% capacity in the black-fly month of June, was completely full this year. Last year it had 65 cancellations because of black flies, this year only four. The local golf course reported a 250% increase in attendance, and were happy to be able to do without the perennial smudge pots. The local dealer of mosquito repellent bewailed the fact that he had to return two-thirds of his annual allotment because there was so little need for the stuff. The hard-pressed Health Officer, in charge of the program, gladly admitted that his June business of taking care of children bitten by black flies was wiped out.

The town of Webb is now drawing up plans for a more extensive program for next year, which calls for buying at least three fog machines, one of which may be operated on the lakes from a boat; continuing the helicopter fogging and possibly adding DDT-plaster blocks to the fast-running streams to dislodge black-fly larvae from rocks where they hatch.

Some cities help recover their expenses of insect-control work by doing "custom" jobs for business establishments and farms, charging them reasonable fees for the service. In some communities, the residents themselves are taxed $1 or $2 a month, to pay for the service, and in some instances they have been known to voluntarily pool funds for a cooperative community effort.

It appears, however, that the problem and responsibility is mainly that of municipal governments to keep parks, public grounds, general environs, and breeding places free of flies and insects.

Richmond Borough in New York was the first borough to invest in its own ground fogger, after an unsatisfactory season with a plane sprayer. On the left is Richmond's Borough President, Cornelius A. Hall. On the right, a Staten Island resident who also is general sales manager of the Combustion Equipment Division of the Todd Shipyards Corporation, Frank K. Steinrock.

Typical of the metropolitan insect-control operation was last summer's all-out program in Charlotte, N. C., in the midst of its worst polio epidemic.

Urban Progress in Latin America

By ANATOLE A. SOLOW, *Housing and City Planning Specialist, Pan-American Union*

Cuba's Model Low-Cost Housing

HAVANA, the capital of Cuba, has been growing at a phenomenal rate, especially during the war years. The metropolitan area has expanded with many new high-class residential districts of luxurious, modernistic design, and has already passed the one-million population mark.

For many years, however, little action has been taken to improve housing conditions of the Cuban wage earner. Now, the first modern large-scale housing project is nearing completion in Havana. This development, like all other government housing, is being built by the extremely active Ministry of Public Works of the Republic of Cuba, which has launched a comprehensive program of public improvements during recent years. Wartime prosperity has inspired the construction of many new bridges, boulevards, parks, schools, and other public works.

The new housing project is one of the largest and most ambitious undertaken anywhere in Latin America. Called "Parque Residencial Obrero," this development occupies approximately 250 acres and will furnish living accommodations and community facilities for more than 7,000 people.

Commuting No Problem

The site, located in the Luyano section of Metropolitan Havana, offers a magnificent view of the bay. A modern high-speed dual highway cuts travel distance from Havana's main business center to ten minutes.

Modern engineering—drainage, filling, and grading—has converted swampy and unhealthy lands, sparsely settled by run-down shacks, into an attractive suburban model community.

Ample Community Facilities

The complete project will provide the following facilities

1,500 individual single-family houses with capacity for four persons each (preferably a couple and two children)
520 apartments in 28 four-story buildings
A children's playground
A "creche" or home for foundlings
An asylum or home for the aged
A market
A sports field and park
A complete scholastic center

During a visit to Havana in September 1948, the writer noted that 200

Aerial view of Parque Residencial Obrero.

Apartment house in Parque Residencial Obrero. Note stores on ground floor, private balcony for each apartment.

View of Parque Residencial Obrero showing groups of one-family houses of reinforced concrete and cement bricks.

single-family houses, 8 apartment buildings, the "creche," and the home for the aged had been completed, while many other buildings were in the process of construction.

The diversification of living accommodations to include apartments as well as single-family houses and the provision of a home for the aged as part of a residential community is a truly progressive step in planning.

Constructed in Modern Style

Single-family houses are of reinforced concrete and cement bricks, with concrete roofs sloping one way and projecting over entrances to give protection against rain and sun. Simple, modern lines produce a neat and artistic appearance. Design of the floor plans is efficient. Each unit contains one living-dining room, two bedrooms, kitchen, and fully equipped bath. The kitchens, as is customary in homes for the low-income classes throughout Cuba and many other Latin American countries, are fitted for the consumption of charcoal.

Apartments are grouped in buildings having three stories above the ground floor, which is entirely devoted to shops and services. Apartments have one or two bedrooms. Balcony approaches have been used, since this type of design has been found suitable to tropical climate. Wooden adjustable louvres are used instead of window glass to permit fullest advantage of ocean breezes.

The cost per dwelling unit is reported as $3,600, and although no definite plans for distribution have been made, the Minister of Public Works has expressed the hope that monthly rentals per unit will not exceed $15. Though this may require a public subsidy, it is recognized that rents must be kept within limits which can be afforded by low-income families.

The architectural and engineering professions are extremely active and powerful in Cuba. They are organized in strong professional societies which are recognized officially by the government. The influence of good engineering and architectural design can be noted in "Parque Residencial Obrero" as well as in all other contemporary construction.

37 Houses a Day on Puerto Rican Project

It is not often that private enterprise has been able to provide low-cost housing on any appreciable scale in Latin America. In Puerto Rico, however, application of mass-production techniques, engineering know-how, and a genius for organization is setting an example in private low-cost housing production which is astounding not only neighboring Carribean countries, but even builders in the United States.

An engineer and contractor of South Carolina, L. D. Long, is achieving results in Puerto Rico which most private builders are dreaming about. Seven thousand one-family bungalows are rising from the ground at the rate of 37 a day, under a $30,000,000 FHA-insured program.

This gigantic development occupies an 800-acre tract in the Puerto Nuevo suburb of San Juan. Areas have been designed for churches, schools, and community shopping centers, calculated to serve an ultimate population of 50,000. Twenty-one miles of paved streets and 56 miles of sidewalks are being laid, and 28 miles of sewage pipelines will connect with a vast sewage-disposal plant near the new community.

Middle-Class Families, Not Workers, Find Rent Attractive

Houses contain a combination living-dining room, two bedrooms, kitchen, and bath. Each house covers 22 by 30 feet on lots 40 feet wide and 80 feet deep. Selling for an average of $4,000 each, the homes can be bought for $400 down and $25 a month, or $23 a month without down payment by veterans. In spite of this low cost, the average Puerto Rico wage earner is not likely to be able to afford such payments, but the white-collar worker and middle-class family find this opportunity attractive, as proven by the fact that 1,500 families have already moved in and another 1,500 are about to occupy a new section of the project which is being completed.

Use of specially designed and patented aluminum forms, into which dampened concrete of varying thicknesses is poured for exterior and interior walls, has made production possible. According to Mr. Long, the building process has been broken down into 47 different operations and is executed by local workers trained specially by crews of skilled foremen flown down from the States. With the exception of aluminum shutters for the paneless windows and some mill work, all raw materials for this vast project are native Puerto Rico products.

The size of the project is a remarkable achievement. Yet there is an inherent danger, recognized by many contemporary housers, architects, engineers, and city planners, that communities of such gigantic size built in a single-dwelling type and at relatively high density, may create a monotonous appearance. The building techniques used should provide a stimulating example, but it is hoped that future communities of that size will be designed with diversification of dwelling types, and provide for housing of different income and occupational groups.

Recent air view of the Puerto Nuevo housing development being completed. It will eventually have 7,000 homes, facilities for a community of 50,000 persons including its own shops, schools, churches, theatres. Inset: General view of Puerto Nuevo development as hundreds of new houses are finished at a rate of 37 a day. Assembly line technique permits two men to build complete walls for a five-room bungalow in three to five days.

WHERE Should Sidewalks Be Placed?

Establishing and maintaining a definite policy is important in simplifying this improvement practice

By L. K. WHITE
City Engineer
Wichita, Kans.

THE sidewalk-location problem often presents itself because of haphazard encroachment on city streets by builders and owners.

The usual width of Wichita's residential streets is 60 feet between property lines; pavement width is usually 31 feet from back to back of curbs, which leaves a parking width of 14½ feet. Allowing 4 feet for the sidewalk, there remains 10½ feet of the parking for trees, poles, water meters, fire hydrants, mail boxes, street signs, gas lines, water lines, telephone underground, and any other "street hardware."

It is the responsibility of the City Engineer to establish the curb and sidewalk grades. When a new area is ready for development, a complete survey and study of all the additions is required. City ordinance requires a minimum slope of ¼ inch per foot from the property line to top of curb in order to insure drainage of the lot into the street. For the ordinary parking, the ideal is a sidewalk grade 4 to 5 inches above the curb. This is quite simple in flat terrain, but in hilly territory cuts and fills must be made in order that the street have an orderly appearance without abrupt changes in grade.

The modern automobile is a low-slung, long-wheelbase machine with protruding exhaust pipes and "exotic" bumper horns. This design limits the maximum height of the drive at the property line to one foot above the curb; otherwise the exhaust pipe and bumper horns will drag on the pavement.

Pavement Resolutions

Pavement resolutions require excavation from "property line to property line" and in case of a sidewalk grade much below the natural ground, the terracing must be on the private property or a retaining wall must be constructed. Some developers insist on planting trees in the parking before the street is excavated, and we are familiar with the practice of sloping the parking area, without cutting to the required grade at the property line, in order to save trees.

Although builders ask for and obtain a building grade in advance of street excavation, in many cases, in order to save expense, no dirt is hauled away from the basement excavation and a yard already too high for the established walk grade is made higher. In some cases where parkings have been

Wichita considers this construction ideal. The developer placed the walk before doing any landscaping. The parking width is 15 feet from the face of the curb to the back of the walk. The few trees which show in the parking in the background were planted after the walk was constructed.

Also good practise, except that the trees were planted before the sidewalk was built and are now too close to the walk. There is complete separation of traffic, pedestrian, and drainage. If the walk were built next to the curb, the water in the gutter would at times be over the walk.

cut down, owners have had them refilled.

For years it has been the practice in this city to build the sidewalk on line and grade where driveways are constructed to the property line, so that future sidewalk construction connects existing walks at the driveways.

A sidewalk can be built adjacent to the curb, but there are objections:

1. There will be a step at each driveway location, and in wet and snowy weather this part of the walk will be in water and snow. This step will be a hazard, particularly at night, because it will not be lighted as the steps are at the street corners.

2. A walk adjacent to the curb is also a hazard to children riding "wheel goods," such as roller skates, tricycles, scooters, and wagons. Driveways also present a hazard and limit the use of the walk for this purpose to the distance between driveways.

3. Walks have a slope of ¼ inch per foot for drainage; driveways have a slope of 1 inch per foot and sometimes more, which is "uncomfortable" to walk on and dangerous when wet or icy.

4. A walk adjacent to the curb should be 6 inches thick, as it will be subject to vehicular travel, with an increase of 50% in cost compared with the cost of a 4-inch walk, which is used at the property line.

5. Melting snow will be splashed onto a walk next to the curb by vehicles at night, will freeze, and in the morning, just when children are going to school, it will be covered with a frozen mixture of snow, dirt, and ice. City ordinance requires the property owner to keep his walk clean of snow and all forms of dirt and debris. We doubt if the ordinance could be enforced if daily cleaning were necessary.

6. The detail at street crossings is very hazardous because the pedestrian must choose between crossing the street at the widest part of the intersection or make a detour back to the property line and back, which we doubt would be done. For crossings having a valley gutter (and nearly all do in this area), the walk line would be in water. For stop streets, the walk line would be 15 or 20 feet in front of stop signs.

7. A lawsuit involving a pedestrian accident at either a driveway or a street crossing would be difficult to defend by the city legal department on the grounds that in this city it is not the usual and customary construction. The owner of the "unusual" driveway could also be brought into the lawsuit.

8. For years the wire companies have placed their poles next to the curb, and if a change in policy requires moving the poles, we believe that they could justifiably ask to be paid for the cost of the work. Street-light poles must remain next to the curb in order to keep the fixture in the street and would be an obstruction. In fact, poles cannot be moved back of a curb walk because of the trees.

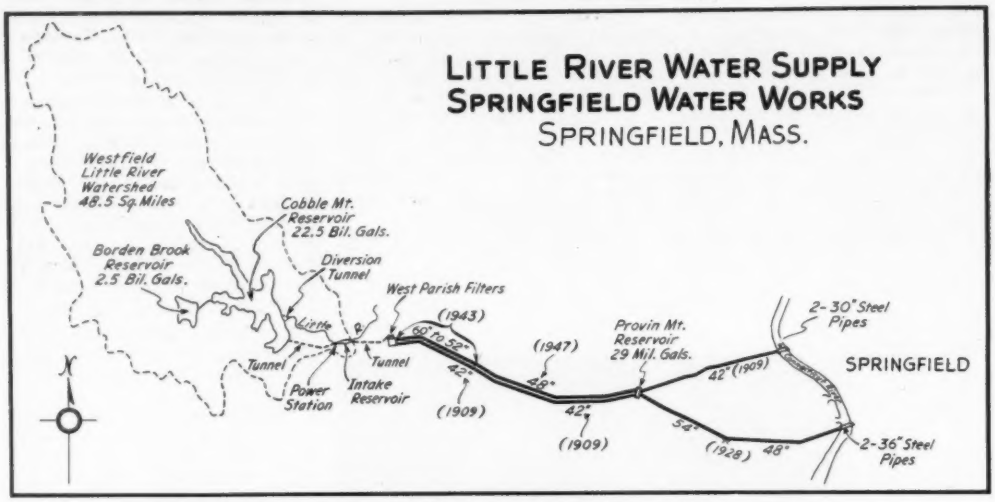
The City Planning Commission and also the City Commission have now established a definite policy of building walks in this city on the property line, or not to exceed one foot from the property line, excepting in cases of wide parkings where the minimum distance from the front of the walk to the face of the curb is to be maintained at 11 feet. One suggestion has been made that the area which is now called "parking" should be changed to "utility way."

The writer would like to add a personal comment for what it is worth: namely, that we believe it would be better for the trees to be planted on private property back of the walk. Almost any tree, as it grows, will eventually cause damage either to a driveway, to the curb, or to the walk. There is one block in this city where this has been done, and to me it makes a very much more pleasing appearance than where the trees are in the space between the walk and the curb. One other error that is made in the planting of trees is that of getting them too close together. The owner of a 50-foot lot usually wants two trees in front of his house, but as the trees grow a spacing of 45 to 50 feet is a required minimum.

A walk is zigagged to suit the property owner. In the foreground it is 2 feet back to the curb, and under it are a cast iron gas main and a water main. Cast iron gas mains in this soil have a high shrinkage factor and are subject to breakage —repairs mean cutting and replacing the walk.

A variation from the usual practice. Here the walk is set out from the property line far enough to "save" the three trees shown. Eventually, the trees will be lost anyway, because the roots are now exposed and there is not enough anchorage to hold the trees in case of a severe wind storm.

Pipeline Solves Transmission Problem



This sketch shows the Springfield pipelines and the dates of their construction.

STEEL WATER PIPE BUILT IN RECORD TIME PROVIDES MORE CAPACITY

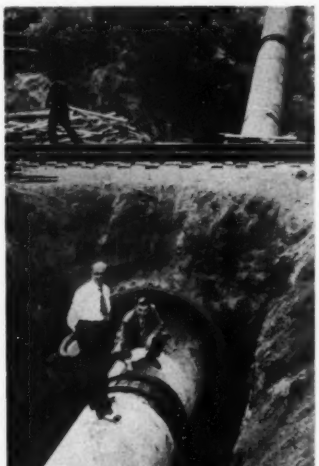
By PETER C. KARALEKAS
Chief Water Engineer
Springfield, Mass.

MOST authorities recognize that water service is a two-fold operation. It consists first of a supply factor —taking the water as it appears in the natural state and treating it so that it is suitable for human use. The second is that of transportation, or bringing it from the point of supply to the user.

In the past, Springfield, Mass. (population 160,000), has dealt with the supply factor of dams and reservoirs that presented interesting engineering problems at the time of their construction. In the past six years the Water Department has also solved its transportation problem by building a second big transmission main, varying from 48 to 60 inches in diameter and performing the work under unusual war and post-war conditions.

The problem of supplying water to the City of Springfield and surrounding towns was partially solved when Cobble Mountain Reservoir was completed. This reservoir will provide sufficient storage capacity for many years to come. The main source of supply for Springfield is the Westfield Little River System, of which Cobble Mountain and Borden Brook Reservoirs are storage units.

Springfield has a secondary source of supply, the so-called Ludlow Reservoir. This reservoir was originally built in 1875, and until 1910 it was the main source of water for Springfield. The reservoir itself has a capacity of 1,855,000,000 gallons and a drainage area above the dam of 20.4 square miles. Water is delivered to four intermittent open sand filters, each with a capacity of 3 mgd, by means of a steam-driven centrifugal-pump installation. Two open-storage distribution reservoirs have a combined capacity of 34,200,000 gallons.



Water Commissioner A. P. McQuade and D. B. Wallace are shown inspecting the new water line under the New Haven railroad tracks. Construction of the line was completed at this point without serious interference with railroad service.

Westfield Little River System

The Westfield Little River System was started in 1909 with the construction of Borden Brook Reservoir and Dam. Borden Brook Dam was the highest earth dam in the United States at the time of its construction. The reservoir has a storage capacity of 2,500,000,000 gallons. At the time of construction of Borden Brook Reservoir, there was also constructed a small in-take reservoir, having a storage capacity of some 40,000,000 gallons. It is situated about one mile west of the site of a slow sand filtration plant consisting of a unit of 3 acres, built in 1909, and one of 3.2 acres, built in 1925. Water from this intake reservoir is diverted to the filtration plant through a tunnel 5,356 feet long, having a capacity of 100 mgd.

When Cobble Mountain Reservoir was completed in 1932, it became a functional part of the water-supply

system, along with the intake reservoir and filtration plant. Cobble Mountain Dam is a hydraulic-fill structure, rising 243 feet above the old river bed, and has a bottom width of 1,510 feet, a top width of 50 feet and a length of 730 feet across the stream at the top. The reservoir has a storage capacity of 22,829,000,000 gallons and a surface area of 1,134 acres at a flow-line elevation of 952 feet above mean sea level. The system as a whole has a total storage capacity of 25,300,000,000 gallons, a safe yield of 55 mgd and a total watershed area of 48.5 square miles.

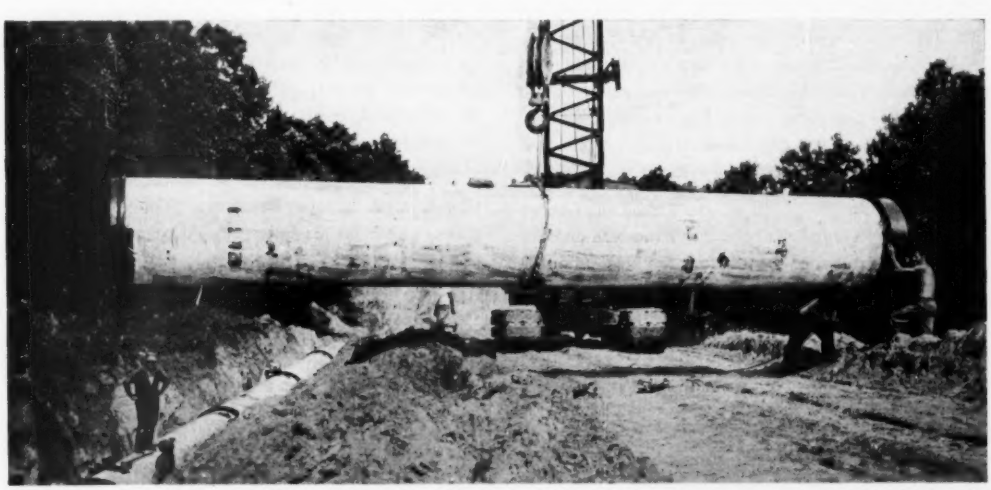
One interesting feature of this source of supply is the facilities provided for the generation of electric power under controlled conditions. With 456 feet of available head between the flow line of Cobble Mountain Reservoir and the intake reservoir, a hydroelectric plant was constructed above the intake reservoir, so that now all water used for water-supply purposes passes through the turbines of the generating plant. The water is delivered to the plant through a pressure tunnel about 8,000 feet in length, with a capacity of 600 mgd.

Filtered water is distributed to the city from the Westfield Little River Supply through the Provin Mountain Reservoir, which consists of two covered concrete chambers and holds about 29,000,000 gallons. It has a flow-line elevation of 404.75 feet. Water is fed to it through 7 miles of 42-inch lock-bar, riveted steel pipe laid in 1909, as well as some 13,000 feet of 60-inch and 52-inch welded steel pipe laid in 1943. The water flows to the city from Provin Mountain Reservoir through two steel pipelines. One line, placed in 1909, is a 42-inch steel pipe with horizontal seams joined by steel lock-bars and roundabout joints riveted. The other line, placed in 1929, is a 54-inch and 48-inch welded steel pipe 7 miles in length. Both lines cross the Connecticut River. The north line consists of two parallel 30-inch steel pipelines, and the south line of two parallel 36-inch steel pipelines. It can be seen that steel has had a long history of use in Springfield. The steel pipe itself has been dipped in coal tar to maintain carrying capacity and also to protect it against corrosion. Over a period of years tests show that the flow coefficient in the line has decreased about one unit annually.

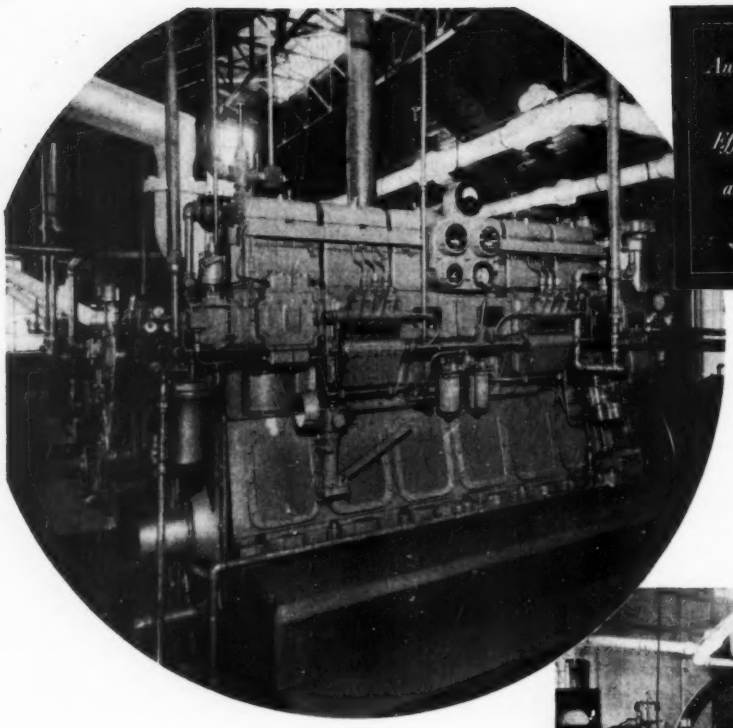
The 42-inch pipeline from the filters supplying Provin Mountain Reservoir was adequately providing sufficient flow to meet the over-all daily demands of the city until 1942. The need for additional carrying capacity became evident as heavy demands were placed on the system when World War II broke out. In 1942, the city completed plans for the construction of a new transmission line from the filters to the distribution reservoir which would parallel the existing 42-inch main. During the war, Springfield, with financial help from the Federal Works Agency, completed 13,000 feet of 60-inch and 52-inch steel pipeline. The lack of steel pipe, which was being used for war purposes, created a problem. This problem was solved by resorting to one of the most spectacular and resourceful salvage jobs in modern water-supply history. Pipe of 26-inch and 30-inch diameter was located and purchased in various cities across the country. It was shipped to the Walsh Holyoke Boiler Works of Holyoke, Massachusetts, and refabricated there. Sufficient pipe of this size was found to complete 13,000 feet of the proposed line. The solution was to make 52-inch-diameter pipe out of two sections of the 26-inch pipe and 60-inch-diameter pipe out of two sections of the 30-inch pipe. The 26-inch pipe, ¼ inch thick, and 30-inch pipe, ⅜ inch thick, was split by burning, and the cut sections were unrolled. The plates were re-rolled to the new diameter and re-welded. The pipe was fabricated in lengths of 30 feet. The sections of pipe were coated at the fabrication plant with a coal-tar preparation. The work of laying the pipe, which was done by D. O'Connell & Sons of Holyoke, Mass., took from January to December of 1943. The addition of this 13,000 feet of welded pipe increased the capacity of the supply by 25% to a figure of 30 mgd.

Transmission Mains Insufficient

As the war ended, the use of water continued to rise, and the transmission mains were insufficient to meet the peak demands. When the demand for water increased after the war, the city again met the needs for additional capacity through a 48-inch steel line approximately 26,000 feet long. In the summer of 1944 the use of water rose to maximum for the day of 32 mg with a peak flow rate of 44 mgd. In 1945 maximum daily use jumped to 29.6 mgd, with a peak rate of 42 mgd. In the latter part of July of the same year, maximum daily consumption rose to 32 mgd, with a peak rate of 46.7 mgd. As a result of these trying situations, it became urgent that the completion of the third transmission main be carried out as soon as possible. (As mentioned previously, supply is not critical in Springfield.) At the close of the war, the city retained Malcolm Pir-



Pipe laying proceeded rapidly—30 to 40 lengths per 8-hour day—since work was well organized. Note the bag on the pipe being lifted: bolts for Dresser couplings were kept clean and together; it also helped to balance the pipe.



Another Example of Efficient Power at Lower Cost

Cooper-Bessemer 187 hp gas-diesel installed at Independence Water Works. Plant also contains two previously-installed Cooper-Bessemer 90 hp gas engines. Thus total plant pumping capacity approaches 12 million gallons per day.

Old steam engine now retired to stand-by service, installed years ago at Independence Water Works (boiler not shown) requires many times the space of compact Cooper-Bessemer gas-diesel of comparable capacity

Like DAVID and GOLIATH

IN THE municipal water plant at Independence, Kansas, this big steam engine and a relatively tiny engine, a modern Cooper-Bessemer gas-diesel, are used for pumping water. But despite their difference in size, the gas-diesel almost equals the pumping capacity of the big steam plant . . . 3,800,000 gallons a day compared with 4,000,000.

Think of the tremendous saving this modern engine permits in the cost of installation, housing, maintenance and general overhead. Even so, the comparison doesn't end there. Cooper-Bessemer's newest gas-diesel development raises thermal efficiencies, *throughout* the load range, to a record high . . . incomparably superior to steam power . . . unequaled by *any other* engine in practical use. In a typical month, for example, the Cooper-Bessemer gas-diesel saved $213.00 in fuel cost alone, a 38% reduction!

Check with Cooper-Bessemer relative to your power needs for the future. You'll be money ahead.

The **Cooper-Bessemer** *Corporation*

MOUNT VERNON, OHIO — GROVE CITY, PENNA.

New York City Washington, D. C. Bradford, Pa. Parkersburg, W. Va. San Francisco, Calif. Houston, Dallas, Greggton, Pampa and Odessa, Texas Seattle, Wash. Tulsa, Okla. Shreveport, La. St. Louis, Mo. Los Angeles, Calif. Caracas, Venezuela Gloucester, Mass. Calmes Engineering Co., New Orleans, La.

nie, New York consulting engineer, to prepare plans for the completion of this new pipeline. Plans, as finally approved by the Board of Water Commissioners, called for 25,900 feet of steel pipe joined with Dresser couplings.

The new 48-inch line is 25 feet north and parallel to the old main. The 13,000 feet of refabricated pipe is 40 feet north and parallel to the old main. This pipe also was supplied by the Walsh-Holyoke Boiler Co., of Holyoke, Mass.

The installation of the 48-inch pipe was carried out by Demos Brothers General Contractors, Incorporated, of Springfield. The firm has broken all records for speed. Previously, the record for pipe installation of this size was 28 lengths in one 8-hour day. This contractor installed 30 to 40 lengths in the same time. Good organization has paid dividends in this work. The method of handling the pipe itself was improved by the contractor; the necessary bolts and nuts used for the Dresser couplings were carefully bagged and placed on top of the pipe section so that the bolts would be clean and useable and kept together. This bag, placed on top of the pipe, was also used to balance the pipe as it was picked up in the sling of the crane which placed the lengths in the trench.

New Section Crossings

The new section of line crosses two moderately large streams and one small ice pond. The railroad crossing was accomplished by first placing 72-inch reinforced concrete pipe in an open cut beneath the roadbed and then pushing through the steel sections. The new line is cross-connected to the old line in two different locations. The 48-inch line is provided with six 6-inch and six 8-inch air and vacuum valve assemblies to protect the pipe from collapse in case of a break. Inlet manholes to the pipe were placed approximately every 1,000 feet. Provisions have also been made for placing gates and outlets at road crossings for future use by neighboring cities and towns. The pipe is made in 34-foot sections and is laid with an average cover of approximately 3 feet. It is coated inside and out with Wailes Dove-Hermiston coal-tar enamel.

The work was started in April 1948, and finished December 1. The first half of the line is in the process of being tested, and preliminary tests show good results. Leakage occurred at a few of the joints because bolts were not sufficiently tightened. These leaks were stopped easily by applying the recommended torque load to bolts.

With the completion of this line, the carrying capacity of our transmission system from the filters to Provin Mountain Reservoir will be increased from 30 mgd to 75 mgd, which should take care of the needs of the area for some time to come.

The work was done under the jurisdiction of the Board of Water Commissioners: Anthony P. McQuade, Chairman, Daniel B. Brunton, Mayor, and Dudley B. Wallace. Peter C. Karalekas, Chief Water Engineer, had direct charge of the work and was represented in the field by Mr. Alan D. Goodall, Division Engineer.

150 Municipalities Use Southern Standard Building Code

By M. L. CLEMENT
Director
Southern Building Code Congress
Birmingham, Ala.

IN THE United States there are 2,152 municipalities with building codes. In 1,578 of these, the codes are from 8 to 35 years old, while in 574 cities they range from 1 to 5 years. In still another group of municipalities, about 1,100, there are no codes at all.

Outmoded codes have cost the average municipality many wasted construction dollars. In the South more than 150 cities and towns have now adopted the modern performance-type Southern Standard Building Code. We believe we are overcoming some of the weaknesses which caused older codes to become obsolete. These weaknesses were as follows:

1. Codes were based on description and specifications dating to the horse-and-buggy days. They prescribed specific kinds and thicknesses of materials, whereas the emphasis should be on performance, i.e., conditions under which a material should perform a certain use.

2. Local politics. Often a local building-code committee consisted of a large number of materials dealers and other groups primarily concerned with safeguarding their products and interests. One of the South's key cities still has a Building Code Committee with 19 members. The compromises that will result can be imagined. On the other hand, the city of Norfolk, Va., under the able leadership of City Manager C. A. Harrell, has shown how a modern code can be efficiently promulgated. There a local committee of three was appointed, composed of one engineer, one architect, and one contractor. A recognized code consultant was also employed. The modern code that was adopted will yield construction savings up to 28% over the old code, and, significantly enough, there was no local opposition expressed at the public hearing on the new code.

3. Publishing costs. The adoption of a code often necessitates a large printing cost. In a number of states this is aggravated by the requirement that codes must be published as many as three times in a local newspaper. Such publishing acts have recently been repealed in a good many states, but among the southern states that still have them are Georgia, Kentucky, Tennessee, and Oklahoma. City officials should urge their state delegations to repeal such acts.

Years ago, a small group of leading Southern city officials held meetings to discuss ways and means of establishing a Southern Standard Code, based on Southern needs and conditions. These men realized that Southern cities could no longer continue to copy other sectional codes without shackling building progress. They also realized that to promulgate a regional code would require several years of work and many thousands of dollars.

They decided to form a Southern Building Code Congress, and enlisted the aid of other Southern cities. Membership fees were set, ranging up to $125 per municipality per year, depending on population. An experienced code correlator was employed and work on the project began.

After six years, the modern performance Southern Standard Building Code was issued in July 1946. The second edition (1949-50) was off the press in November 1948. Today the Congress has more than 100 members. Obsolescence in building regulations is on its way out in the South, thanks to a few city officials who had vision.

In the promulgation of the Southern Code one hundred building officials, architects, engineers, and builders all over the South gave unselfishly of their time. The Southern Building Code Congress has shown that the scientific approach to the nation's building-code problem lies at the city hall, and with a standard, regional, or sectional building code maintained up to date.

For another article on building-code progress see "Building Officials Draw Up Basic Building Code," by Albert H. Baum, in THE AMERICAN CITY, December 1948, pp. 109-110. See also editorial on page 5 of that issue.

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The Big City Must Adjust Itself

By HERBERT B. DORAU
Professor of Economics
Chairman, Dept. of Public Utilities
New York University

WHEN the American people took to wheels, they found they liked it and have refused to change back; in fact, they appear to be headed for further and wider use for this and other flexible means of transportation. . . . The choice is plainly between the automobile and the old city as we have known it. Either the city must adjust itself to the automobile or the automobile with its average family of 3.2 will leave the city. . . .

Because of the prohibitive cost of remodeling cities and the time which it will take, the present consensus seems to be that it is not possible to halt the outward flight of urban populations; that casual, minor, and piecemeal relief will have little effect. The best that can be done seems to be to employ various devices to check the movement and reduce its acceleration. Among these devices is the revitalizing of blighted areas under such arrangements as provided for in urban redevelopment acts and, in general, making the city a somewhat more attractive place to live and work.

It is dubious whether all such proposals wrapped together can more than slow up the deurbanization movement, and it is improbable whether it can be done without substantially increasing the cost of operating the urban economy, which would only be adding fuel to the fire. . . .

The city is obsolete, not merely because of changes which have taken place in itself, but also because its competitive alternatives (other places to live) have become so much more available. Common utilities such as electricity, water, telephone, gas, bus transportation, paved roads, and good schools were once great centralizing forces, since they were originally and extensively available only in larger centers of population. Now these essentials of the accepted standard of living are widely and generally available, and can be had upon demand in almost all but the most remote places. In these respects, the city has lost its bargaining power. The automobile began it, the radio furthered it, and television may well finish it. . . .

"Where People Are Lonesome Together"

Sociologically, the city is becoming increasingly disorganized and segmented. More and more, social relationships for the middle classes in particular are impoverished and restricted. Continuity of social contact may be longed for, but rather infrequently achieved in the large city. Someone recently observed that the city is a place where people are lonesome together.

Not only is the big city losing its position as a center of production and even being challenged as a center of trade and distribution, and threatening positively to decline in numbers, but it is also losing out in the *economic quality dimension.* Industries that have remained in large cities have increasingly been those which subsist and thrive on cast-off building space or unnatural and temporary labor gluts. No solid economic foundation for the future city can be found in the utilization of distress goods or services.

The net effect of sociological and economic changes in general appears to be in the direction of an increasing proportion of city populations consisting of less productive and less efficient workers with generally lower relative incomes. Not only is the relative purchasing power of those who remain to occupy big cities decreasing, but their tax-paying ability is decreasing as well. The contrast between the character of the population living in the city and out of or around the city are striking according to almost every measure which can be applied.

Rapid Decline Not Expected

The decline of the city will probably be in general no more rapid than its rise, but it may be observed that the economic consequences of decline are more serious and more readily felt than the readjustments incident to the rise of the city. Neither will all cities be equally affected, nor is it reasonable to assume that the decline will actually partake of an exodus. As the pressure on city facilities declines, as more and more cast-off space and second-rate housing becomes available, equalizing and stabilizing movements will set in to prolong the period over which the functional readjustment of the city will take place. Important regional differences in the general trend may be noted. . . .

One of the reasons for the rapid decadence of cities as places to live is undoubtedly the inability of groups of people to crystallize into subsidiary living centers with some semblance of common interests, cohesiveness and standards. . . .

The mania for making every little street a through street exposes incipient neighborhood developments so ruthlessly to the impact of the general character of the city as a whole that the sub-neighborhood idea will prove to be so much wishful thinking. . . .

No Protective Boundaries

As long as every street is a "through street," such areas have no protective boundaries to assist in the development of a satisfactory degree of homogeneity. Little can probably be accomplished except at the level of subsidized public housing for the lowest income groups who, however, really have no permanent place in large numbers in the big cities anyway. So many people in large cities are merely there because they are there—an obviously unsound situation. . . .

A realistic approach to the changing character and place of the city needs to recognize that the underlying urges and causes of the trends already in evidence are far more widespread and powerful than might be concluded from mere observation of what has so far transpired. A very large portion of the big city's functions continues to be used because of sheer inertia. The mistakes of public and private policy in the face of these indicated directions of change will, if any, be errors of underestimation as to the changes and the direction of change which they evidence. The possibility of really doing anything economically advantageous to stem the tide of what will be one of the major revolutions in the 20th Century is most dubious. We are likely to spend more trying to thwart the inevitable than the ends are worth. It would seem best to let nature take its insistent course. Sardonically, the big city, a product of steam and rail, is facing the obsolescence of coal and the locomotive which made it.

Excerpts from an article by Dr. Dorau entitled "Urbanism and the Future of Land Values," published in *The Appraisal Journal* for January 1949.

There's No Place for Either In Today's Municipal Thinking!

That's Why Progressive City Officials Are Urging Architects, Builders and Plumbers to Recommend Modern Kitchen Disposers!

There was a time when the home garbage disposer was generally considered a "novelty" . . . a "gimmick," if you will. And, just as many people predicted the auto would never replace the horse, when the first disposers came out, precious few municipal officials foresaw that it would ever replace the garbage can.

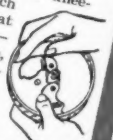
But that is exactly what is happening—to the benefit of all concerned. Slowly but surely more and more homes are disposing of their own garbage this better, more sanitary way. That *all* homes will eventually be equipped with disposers is inevitable. Because home disposers offer the *only* solution to the municipal garbage problem, with all of its attending high costs and danger to public health.

Today almost every American city has given its stamp of approval to the modern disposer. For, besides the obvious contribution to the safeguarding of the public health, city officials know that when *all* homes are equipped with disposers tremendous savings can be effected in the collection of refuse.

The new American Kitchens Disposer. As was cited in *The American City's* study, "Ground Garbage," (Feb. 1948 issue) universal use of such disposers (1) should not overload a sewer system, (2) nor cause trouble of any kind in any well-designed sewer, (3) will effect material savings in the cost of handling garbage.

WHY ENGINEERS SAY THE NEW AMERICAN KITCHENS DISPOSER IS SUPERIOR TO PREVIOUS TYPES

While *all* nationally-advertised disposers have been proved satisfactory, engineers consider the new American Kitchens Disposer the most advanced. For several reasons: the American Kitchens Disposer provides a patented "knee-action" hinge in the center of each pulverizer arm (see diagram) so that disposer absolutely can not jam—even on contact with metal! Also, engineers approve its additional *vertical* shredders, saw-tooth hammers, easier servicing.



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AMERICAN CENTRAL DIVISION AVCO CONNERSVILLE, INDIANA

Kitchen Garbage Grinders

AND THEIR RELATION TO THE PUBLIC WORKS FIELD

Digest of a Joint American Public Works Association Progress Summary, prepared from

The Report of the Committee on Sewerage and Sewage Disposal

E. L. FILBY, ***Chairman***
Black & Veatch, Consulting Engineers
Kansas City, Mo.

The Report of the Committee on Refuse Collection and Disposal

T. F. MURPHY, ***Chairman****
District Manager, Sicard Industries, Inc.
Chicago, Ill.

This digest is published with the authorization of the American Public Works Association, 1313 East 60th St., Chicago 37, Ill. Footnotes have been supplied by *The American City*.

KITCHEN grinders, used to dispose of household food wastes by water carriage through domestic sewers, have been in active service for more than 15 years. Prior to the recent war, relatively few were in use, largely the product of one company. After the close of the war, however, more manufacturers became interested until today there are at least a dozen firms from coast to coast producing these units. One company is now developing grinders for department stores, restaurants, and other large food-waste producers.

Data as to the number of units in operation are not particularly definite. A general letter to each of the manufacturers on this subject brought forth only nine replies. Several referred to the fact that the National Association of Electrical Manufacturers had this material in its confidential files. An estimate by Ralph Fuhrman, Superintendent of the District of Columbia sewage-treatment plant, Washington, D. C., places the pre-war number at 175,000 units. He estimates further that about 200,000 are now being manufactured and installed each year.[1] *

On the west coast, the installations appear far more numerous than in other sections of the country. San Diego seems to have the most, estimated by the city plumbing departments to be 3,000 units. The highest number of restaurant installations by far is in Schenectady, N. Y., the home of the initiator of this device.

The Committee on Sewerage and Sewage Disposal sent a questionnaire to all cities with a population over 50,000, 1940 census, addressed to the chief plumbing inspector, asking for data. Of the 197 questionnaires, 110 have been returned, which gives a fair sampling of the United States. It includes replies from 34 states. With 110 replies, or 55.8%, we note the following:

At least seven major cities prohibit the use of garbage grinders. These are New York City; Philadelphia; Miami, Fla.; Knoxville, Tenn.; Trenton, N. J.; Youngstown, Ohio; and York, Pa. Youngstown, Ohio, had, however, an estimated 500 installations prior to the adoption of the prohibitory ordinance. Miami will permit their use only if they discharge into a private septic tank.

At least 17 cities do not approve of installations in hotels, restaurants and clubs. These include Elizabeth, N. J.; New Haven, Conn.; Syracuse, N. Y.; Baltimore, Md.; Wilmington, Del.; Davenport, Iowa; Mt. Vernon, N. Y.; Allentown, Pa.; Evanston, Ill.; Oak Park, Ill.; Waterloo, Iowa; Salt Lake City, Utah; Cincinnati, Ohio; Spokane, Wash.; Durham, N. C.; Madison, Wis.; Los Angeles, Calif. The reasons for non-approval seem to be generally that a grease trap is required on all sink waste lines as in six cases.

The housewife wants to know what these grinders can provide in convenience and general home sanitation.

Service Charges Listed

Charges for regular sewer service are reported by 22 cities, and only in five cases does the use of a garbage grinder increase the regular charge. In Oak Park, Ill., and Detroit, Mich., the extra water used will increase the sewer-service charge. In Louisville, Ky., the increase is "about 10%." In Canton, Ohio, the cost is $3.50 more per year, and in Allentown, Pa., it is $6 more per year.

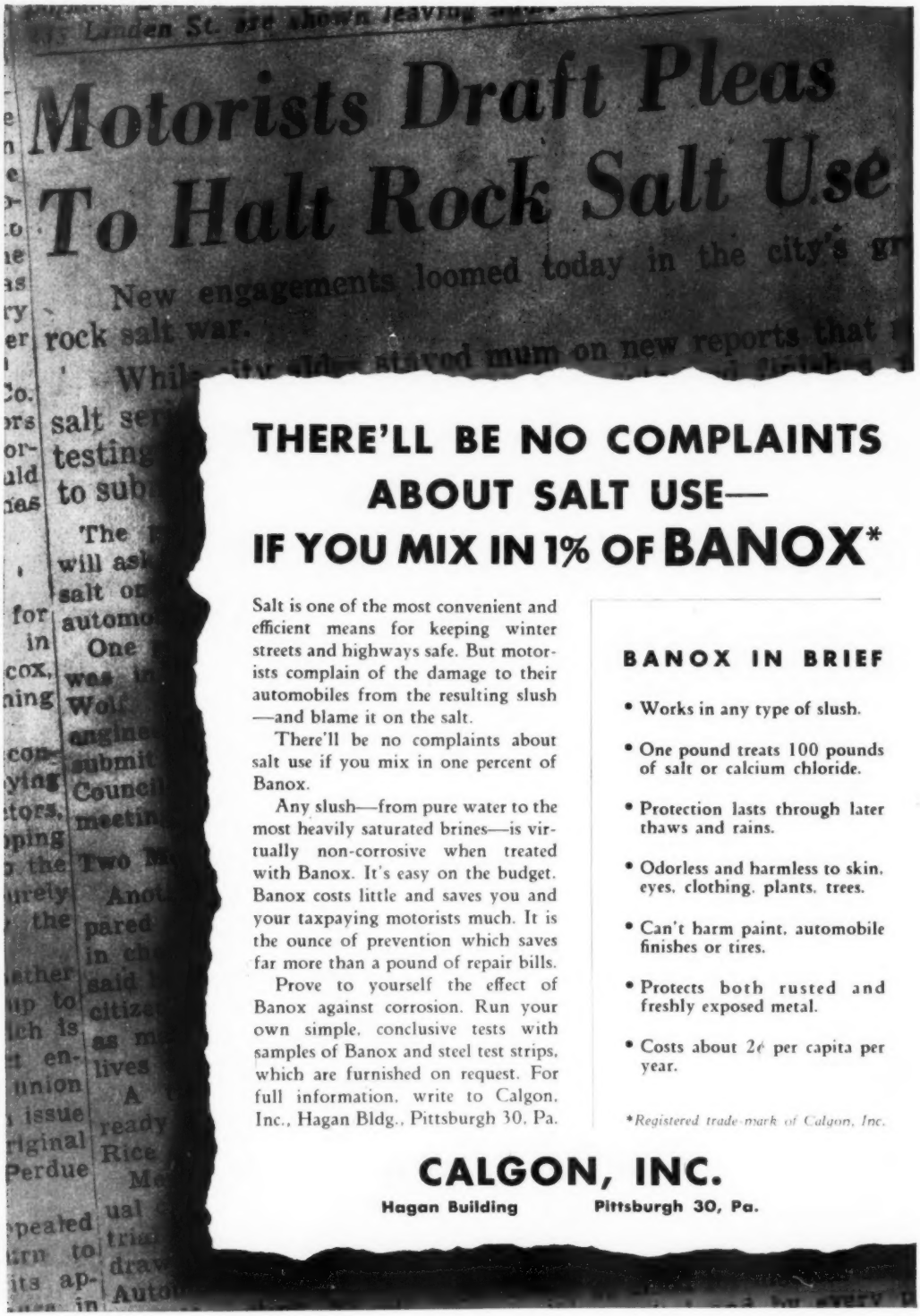
The estimated number of installations as reported by the 103 cities that permit household grinders totals 16,887, with 456 installations in restaurants, 96 in hotels, and 35 in clubs reported from the 82 cities permitting such installations. The figures are very incomplete because few cities require a permit for installation.

Only three cities reported the use of central municipal garbage-grinding stations—namely, Lansing, Mich.; Marion, Ind., and St. Louis, Mo.

During the past year, members of the

* Numbers refer to bibliography at the end of the article.

* At the time of his appointment as Committee Chairman, Mr. Murphy was Supervisor of Refuse Collection for Chicago, Ill.



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- Protects both rusted and freshly exposed metal.
- Costs about 2¢ per capita per year.

*Registered trade-mark of Calgon, Inc.

CALGON, INC.

Hagan Building Pittsburgh 30, Pa.

Joint Committee have had an opportunity to review literature discussing this subject, and also to examine literature describing certain of the grinders themselves. Apparently by this time most sanitary engineers have arrived at these general conclusions:

1. That food wastes disposed of through grinders now offered on the market will flow in the standard well-designed sewer and will not produce any problems from the standpoint of flow volume.[2, 3, 4]

2. That the grinders, if used extensively, will place an appreciably increased load on the sludge-handling facilities of the plant. This appears to vary from 0.07-0.11 pounds per capita per day [6] or around 55% of the total, to upward of 300%.[5]

3. That the grinders, if used extensively, will throw an appreciable added load on the oxidizing units in the plant amounting to roughly 30%.[3, 7] Some members of the Joint Committee questioned this figure.

Some Public Opposition

Whether public-works men should look with favor on this development in household life has been the subject of much interesting discussion. The most outspoken warning on extensive use of the grinders comes from New Jersey.[3] The State Department of Health warns that already 75% of the existing sewage-treatment plants are overloaded. The extensive use of the home grinder is described as a "creeping menace to the solution of the already serious problems of stream-pollution control in this state."

The literature discloses that other state departments of health also are apprehensive of what the extensive use of the grinders will do. Idaho, Kansas, Maine, North Dakota and Virginia join New Jersey in expressing concern over the effect of the grinders on the stream-pollution program.[8]

However, the same literature discloses that many states have constructive suggestions on how to meet the question. Briefly, their thoughts may be summarized as follows: [8]

1. The use of the grinders is not now widespread enough nor will it be in the future to warrant concern in the city's sewerage system (Georgia, Illinois, Louisiana, Maryland, Minnesota, Nebraska, New Hampshire, Ohio, Rhode Island, Texas, Tennessee).

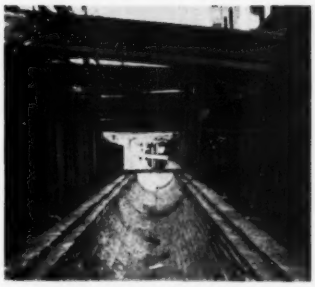
2. An ordinance banning the grinders is impractical and probably more expensive to enforce than the cost of added sewage facilities (Florida, Kentucky, Michigan, Oregon, Rhode Island).

3. The use of the grinders is a step forward in public-health sanitation, since it helps solve fly and rat problems (Florida, Kentucky).

4. A city able to afford grinders on a large scale certainly should be able to afford adequate sewage treatment (Florida).

5. Those cities using sewer-service charges could certainly adjust those charges to compensate for the added solids load (Idaho, Michigan, Minnesota, Ohio).

6. That other factors carry far more weight in stream-pollution abatement than those caused by garbage grinders (Oklahoma).



The municipal official wants to know about their effect on the sewers . .

Treatment Costs

The effect of the grinders on the general cost of sewage treatment has an interesting added feature given it from studies made in Oakland.[5] Most officials agree that there will be added solids involved and face this as an expense. Oakland estimates that the sludge volume will be increased by as much as 300% but looks at this as a revenue builder. The sludge responds readily to digestion, yields a good volume of gas that can be utilized for power at a figure readily computed. The digested sludge can be dewatered and turned to fertilizer also at a calculated profit. Thus in effect, the added sludge reduces the cost of treatment, the Oakland officials feel.

Differing opinions arise also among officials over the degree of grinding that should be effected by the units. In Washington, D. C., the Sanitation Department has established this standard: [7]

Screen	*% Passing*
⅜-inch	100
¼-inch	75

The General Electric Company, in paid advertising that has appeared in many of the technical magazines, offers this recommendation:

Screen	*% Passing*
4-inch—at least	100
¼-inch—at least	90
#40—5 maximum	

In the opinion of the Committee, the 4-inch requirement is somewhat unusual. It is a little hard to visualize a grinder able to pass a piece of garbage measuring 4 inches in diameter.

Los Angeles has adopted particule requirements also, as follows:

Screen	*% Passing*
#8	40
#3	65
½-inch	100

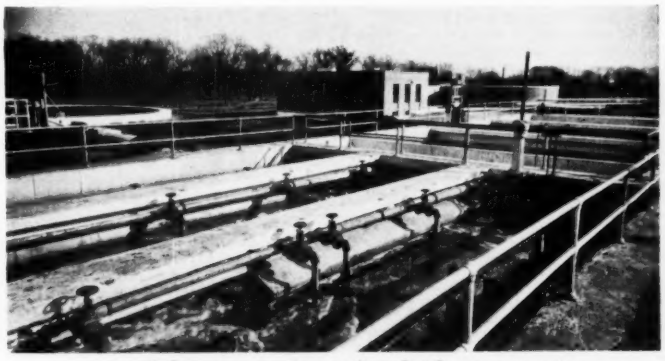
Some members of the Joint Committee questioned the need for the #8 screen specification. They felt that in general all that is needed is maceration to a size small enough to allow easy flow in the sewer.

One important manufacturer,* incidentally, records that over 10,000 grinders are serving successfully in households using septic tanks, thus indicating that this should not be considered an insurmountable barrier.

The Joint Committee also examined the grinder features of seven grinders. This examination was from the literature distributed by these companies rather than by actual inspection of the units.

One principal point of difference be-

* General Electric Company.



. . . and the sewage treatment plant that he must operate.

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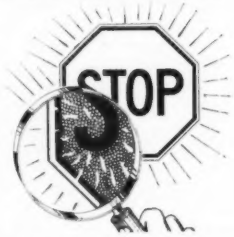

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tween grinder makes was that of the flow-interlock feature. Three of the largest distributors * all use this device. It consists of a switch mounted in the cold-water pipe. Thus to turn the grinder on, the housewife turns on the cold water, and the flow of water through the pipe actuates the switch. It insures that there will always be water in the mechanism when the grinders start to work. This seems like a good precaution, but does not bear directly on the sewerage system. It may, however, be important in plumbing codes.

It also insures that the garbage will be ground in cold water. Theoretically, this means that the grease will have an opportunity to congeal and flow through the sewer in the form of small solid particles, and thus have less opportunity of clogging the sewer. This also seems to be a good feature, but the literature is not particularly definite on the essentiality of the practice.

Whether the flow interlock controlled by the cold water faucet is a necessary feature of the grinders is a question that seems beyond the scope of this paper. All members agree that it makes the operation of the grinder more simple, or "foolproof." However, the simple operating procedure of the other grinders did not look beyond the ability of the housewife.

In fact, the wife of one committee member became somewhat indignant at the thought that she could not follow the sequence of turning on the cold water tap and then throwing a switch and asked the member in question whether he had ever run a vacuum cleaner, turned on a washing machine, baked a cake, or, for that matter, driven a car! This particular committeeman entered his recommendation that the grinders controlled by a switch be considered acceptable until positively proven undesirable.

Egg Shells

In Houston, Texas, an egg-processing plant tried to grind up egg shells and dispose of them via the sewer but clogged the sewers and plant service lines.† It is apparent that the industrial use of grinders may be limited. Such material as oyster and clam shells should not be disposed of by grinding, but apparently pits from peaches, plums, etc., can be successfully handled. The household grinding of garbage apparently helps control grease deposition.

The Joint Committee feels that the household grinder is about in the same category now as the early bathtub installations, and believes that the use of household units will spread rapidly as costs decline.

* General Electric, Hotpoint, Westinghouse.

† For a more detailed study of egg shells as a possible trouble-making factor, see THE AMERICAN CITY, Jan. 1949, pp. 102-3.

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Checklists for Determining Community-Industry Location Advantages

USE of a checklist to provide a community with a good idea as to the relative benefits and drawbacks of potential industries is suggested by Van Beuren Stanbery, Western Area Development Representative of the U. S. Department of Commerce, in a bulletin entitled "Suggestions for Diversifying Industry in Your Community." *

The report emphasizes that mere diversity itself should not be the objective, but rather the specific benefits which particular kinds of diversification would produce.

In addition to showing benefits of a particular type of industry to the community, the bulletin suggests that checklists and ratings showing the particular location factors and advantages the community has to offer different industries should be helpful during interviews or correspondence with reference to industrial prospects. Approximate ratings might be developed by assigning numerical weights to the community's location factors and advantages according to their importance to each potential industry. Industries with high ratings on both lists would be advantageous to the community and would also merit special attention because of what the community can offer them.

A sample checklist by which communities can judge particular types of industries is enclosed with the bulletin. It includes the following questions about potential industries:

1. Probability of permanence?
2. Sensitivity to fluctuations of business cycle?
3. Highly modernized, using latest technical improvements?
4. New types of products being developed as substitutes?
5. Employ predominantly skilled and semi-skilled workers?
6. Employ chiefly untrained labor?
7. Increase variety of occupational skills?
8. Average earnings above or below general level?
9. Tend to compete for labor with established industries?
10. Subject to seasonal fluctuations?
11. Fluctuations in the same months as existing seasonal industries?
12. Provide more part-time employment?
13. Tend to reduce commuting to other places?
14. Use local natural resources or raw materials?
15. Use chiefly raw materials from outside area?
16. Provide new or wider uses of local materials?
17. Use natural resources in a wasteful manner?
18. Tend to create opportunities for related industries or service activities?
19. Fill gaps in area's industrial pattern?
20. Tend to integrate manufacturing activities?
21. Tend to integrate manufacturing with distribution and services?
22. Possible adverse effects on existing business or industry?
23. What kind of adverse effects?
24. Probably local or absentee ownership?
25. Probably branch plant of national firm?
26. Require large quantities of water?
27. Require large quantities of electric power?
28. Produce noxious fumes or wastes?
29. Overload sewage facilities?
30. Special requirements for industrial site?
31. Require additional expenditures for public improvements?
32. Require changes in zoning regulations or other ordinances?
33. Other possible detrimental effects?
34. Specially advantageous to community?
35. For what reasons?

* Copies of the 8-page mimeographed bulletin may be obtained without charge upon request to the U. S. Department of Commerce, Washington and Battery Streets, San Francisco 11, Calif.

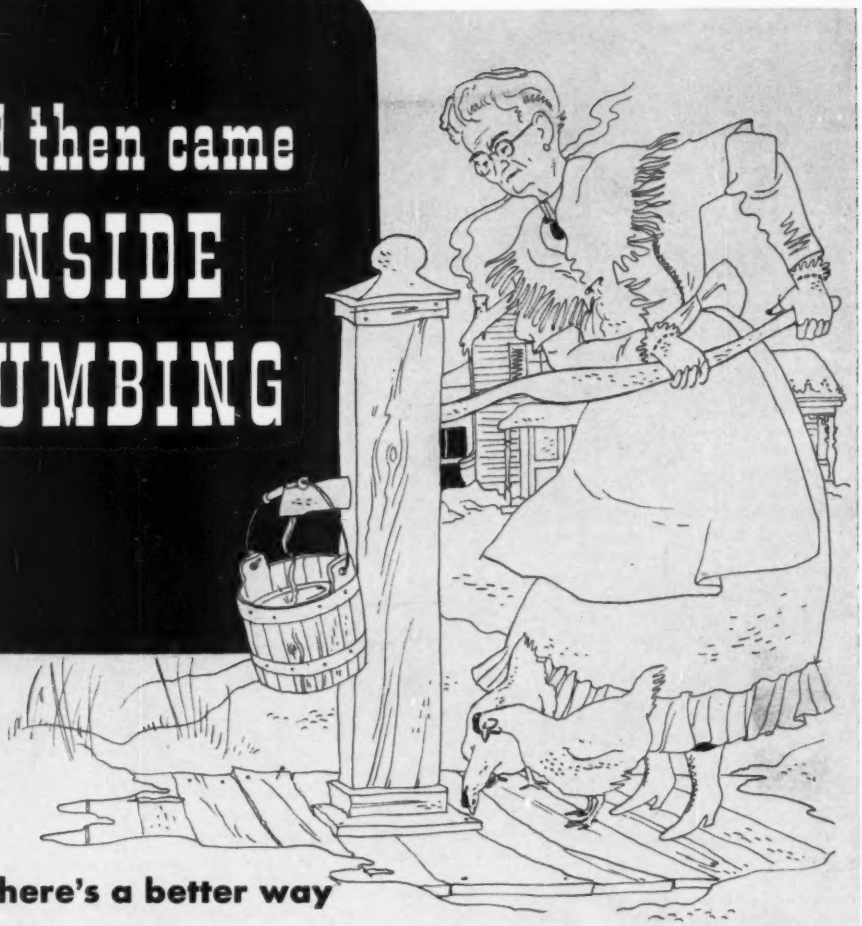
$60,000 in Prizes for Community Betterment

A NATIONWIDE contest among federated women's clubs in a "Build a Better Community" program was announced at a luncheon at the Hotel Statler in Washington, D. C., on January 25.

The contest is sponsored by the General Federation of Women's Clubs with the cooperation of The Kroger Co. of Cincinnati, Ohio, donor of $60,000 in prizes. The awards will go to clubs whose projects in the opinion of three judges, not yet appointed, have made the greatest contribution to the betterment of their respective communities during the 12 months ending January 15, 1950.

An attractive brochure outlining the scope and rules of the contest is available on application to General Federation of Women's Clubs, 1734 N St., NW., Washington, D. C.

and then came INSIDE PLUMBING



When there's a better way of doing things, Americans do it!

WHAT was good enough for grandma is NOT necessarily good enough for the great majority of modern-minded Americans. That's what keeps America moving ahead . . . enjoying the world's highest standard of living! Outside plumbing, for the most part, is a thing of the past—and today the same obsolescence faces the garbage can.

Hotpoint Inc. *(A General Electric Affiliate)* Chicago, Ill.

NOW COMES THE **Disposall**®

Everywhere forward-looking public officials are endorsing Hotpoint's Automatic Electric Disposall® for its safe, sanitary and efficient method of eliminating diseaseful garbage. Modern women want it—public health demands it!

Everybody's Pointing To

Hotpoint

Refuse has to be disposed of promptly in Beverly Hills, so the plant uses a direct floor-charging design.

Incinerator Handles Garbage-less Refuse

High capacity, no storage pit, large charging gates, heavy air-draft, mechanical stoking characterize the Beverly Hills' combustible-rubbish incinerator plant.

By H. J. SCOTT
Superintendent of Streets and Maintenance
Beverly Hills, Calif.

ONE gets a glimpse into the incinerator design of the future by looking at the new incinerator now serving our city. At the Boston annual Congress of the American Public Works Association, a number of officials present stated that the future incinerator will probably receive refuse low in garbage content because of the growing use of kitchen grinders. They said further that the incinerator designers would have to keep this in mind when laying long-range plans for new refuse disposal plants.

These conditions had been considered and were a factor in the design of the Beverly Hills unit. This plant handles no organic garbage. All kitchen food waste goes to hog farms by a separate city collection. Cans and bottles are also collected separately by city crews, and then salvaged by a private contractor. The only portion of the refuse requiring destruction is the combustible trash.

Has Much Burnable Refuse

Beverly Hills, with an area of 5.2 square miles and a population of 30,000, has about 85 tons of this to destroy per day. Approximately 25% comes from the park department and consists of palm fronds and similar material characterizing the refuse of a community that prides itself on its garden appearance. The city has 60 acres of parks and approximately 26,000 parkway trees owned and cared for by the park department.

We faced the strict requirement, in design, that incinerators must meet rigid smoke control rules. The Air Pollution Control Board of Los Angeles County places a requirement of 0.4 grains of dust per cubic foot of gas discharged from any stack with the measurement at stack temperatures. Most cities are satisfied if the figure is 0.75 grains measured at atmospheric temperature. The Board also requires that the density of the smoke shall not exceed the Ringleman #2 for more than three minutes out of any hour.

The city is justly proud of the fact that the Air Pollution Control Board has recently presented it with a certificate which reads:

"The Air Pollution Control Board of Los Angeles County, Calif., awards this certificate for outstanding achievement in reduction of atmospheric pollution to the city of Beverly Hills for construction and operation of its new municipal incinerator."

The problem of handling specialized refuse under the restrictions outlined was studied by Taylor and Taylor, the consulting engineers retained by Beverly Hills to prepare the necessary specifications. They faced the further complications of post-war price effervescence which has made cost estimates such a headache.

Proposals were taken in July 1946, on the basis of constructing the incinerator and building in accordance with a definite design prepared by consulting engineers. Only one bid was received, which was for $692,000.

This bid was rejected as being too high, and the specifications were revised to permit incinerator manufacturers to submit their own designs of the plant. Nevertheless, all detailed designs had to be made by the contractor, subject to the engineer's approval. Further, the contractor was required to guarantee satisfactory operation at rated capacity in compliance with the smoke and fly-ash regulations of the Air Pollution Control Board. Bidders on the plans as prepared by the consultants were not required to guarantee operating results. Proposals were solicited in November 1946, and seven bids were received. Contract was awarded to the Nichols Engineering & Research Corporation, of New York. Construction was completed early in 1948, at a cost of $334,000.

The design recognized that although garbage was not now present in the refuse, it might be in the future, so we specified a furnace which would burn a combined refuse containing 25% garbage and the balance burnable trash. Actually, the refuse meets the following general quantity analysis, though it varies greatly from season to season:

Paper, 10%; brush, 47%; leaves and grass cuttings, 43%; average weight, 180 pounds per cu. yd.

Limited Area Available

The plant had to be located on a site of very limited area, two blocks from an attractive City Hall, and immediately adjacent to a residential income district. Therefore, the storage of refuse in bins or on the charging floor was open to criticism by the nearby resi-

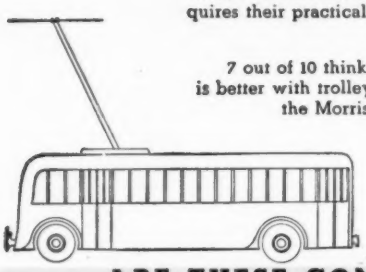
(*Continued on Page* 139)

Philadelphia knows how to enlist public support, and how to **keep it!**

7 out of 10 people **expressing an opinion** in a city-wide survey* prefer electric transit vehicles—PCC cars and trolley coaches.

9 out of 10 **like** the new trolley coaches on the Morris-Tasker line† . . . where heavy traffic requires their practical application.

7 out of 10 think the **service** is better with trolley coaches on the Morris-Tasker line.



*1945, Opinion Research Corp. †1947, National Analysts, Inc.

ARE THESE CONDITIONS TRUE IN **YOUR** CITY?

"This traffic problem has to be solved!"

"And without spending millions for freeways and superhighways."

"All those cars and no customers! This neighborhood is blighted!"

PERHAPS YOUR CITY IS ONE OF THE HUNDREDS SUFFERING FROM TRAFFIC CONGESTION AND BLIGHT CONDITIONS. ELECTRICS ATTRACT MORE RIDERS AND COST LEAST TO OPERATE. PLEASE WRITE US. WE ARE ANXIOUS TO HELP. Apparatus Department, General Electric Company, Schenectady 5, N. Y.

GENERAL ELECTRIC 183-4

Old-Fashioned Traffic Signals in Most Business Districts

To the Editor of THE AMERICAN CITY:

It certainly was gratifying to see the excellent manner in which you presented the subject of modern traffic-signal installations in your November 1948 issue under the title, "Signals for Walkers and Signals for Drivers." The letters forming the symposium were based on our Peoria, Ill., Traffic Survey. From our survey experience in many cities of many states, I think it can safely be said that practically all American cities are now operating with obsolete traffic-signal systems in their central areas. The pre-war depression era, followed by the war itself, presented a period of nearly 20 years during which traffic-signal systems were given very little attention. Therefore, we find many cities today laboring along with "1929 models."

This lack of attention to traffic improvement is not limited, of course, to traffic signals; it is admitted that the highway system as a whole is considerably behind in maintenance and replacement. The situation with traffic signals is different, however, in that citizens can see poor pavement conditions or poor road design—and they get results in encouraging city officials to take proper steps. It is a different matter for a citizen to recognize the inefficiencies of antiquated signal equipment when those inefficiencies are measured by the cumulative effect of a small number of seconds in each cycle.

The matter of proper location of signals, which is primarily the subject of your November article, is also not an easy matter for the average citizen to detect. Unless drivers in cities having "old-fashioned" equipment are privileged to drive in such cities as Portland, Ore., and Detroit, Mich., they will never know what a modern signal-location plan should be. Citizens will continue to expect signals to be placed so that the vision is obscured by telephone poles and other utilities, and that better pedestrian control is impossible.

Your magazine is doing a real service in calling city officials' attention to what a truly modern signal-location plan should be, with separate signals for drivers suspended over the roadway (either by mast-arms or by cables), because city officials of most American cities are faced with the problem of modernizing their traffic-signal systems now.

J. A. CARROTHERS, *Chief Traffic Engr.*
Association of Casualty & Surety Cos.
New York, N. Y.

What Modern Traffic Signals Are

To the Editor of THE AMERICAN CITY:

Many American cities are now operating vehicular traffic through their central business districts with obsolete traffic-signal systems. Any signal system can control vehicles and pass such traffic through the area. How efficient are these signals in reducing delay to the minimum and otherwise doing their work with the utmost efficiency? The term "obsolete," when referring to traffic signals, applies to (1) the degree of flexibility obtainable in the system, and (2) the type and location of the signals.

An efficient signal system allows for varying the lengths of the total time cycle which can be applied from a central point during the business day. Peak volumes must have longer green intervals to reduce the inertia loss in more frequent starting. Cycle changing should be done automatically rather than manually. Some traffic conditions require that greater facility of movement be afforded in one direction of flow than in the other, as, for instance, inbound in the morning and outbound in the evening. These and other features of flexibility are not possible unless modern traffic-control equipment is employed.

The traffic signals themselves should be of modern design, uniformly located throughout an area. They should afford pedestrians ample indications with, preferably, exclusive pedestrian indication. We have entirely too many cities where signals are not uniformly located—some overhead, some on corner posts. That condition is true in Dallas, Texas. Here, with a rapidly expanding city, funds are insufficient event to signalize intersections, let

Semi-actuated signals at intersection of South University Boulevard, Exposition Avenue and Bonnie Brae Boulevard, in Denver, Colo.

REDUCE HIGHWAY MARKING COST
INCREASE HIGHWAY SAFETY . . .

with the

PRISMO
LIFE LINE

Enlarged cross section of minute part of Prismo Life-line showing the various size Prismo spheres embedded in the special Prismo Binder.

The Prismo Life-Line costs less to apply . . . lasts longer . . . and provides greater safety by reflecting light at the widest angle of sight. Users constantly affirm the longer lifetime of the Prismo Life-line with reports of extra years of service. The outstanding qualities of Prismo make it your budget's best buy.

On the highways, the guide line to safety is the Prismo Life-line. By day, it is clear and distinct. By night, billions of tiny Prismo spheres embedded in the special Prismo binder reflect lifesaving light to guide motorists along a glowing ribbon of safety.

With the same economy and efficiency, the easy-to-use Prismo sign kit readily transforms bridge abutments, culverts, guard rails, signs, and other roadside aids into glowing sentinels of safety. Reflectorize with Prismo . . . The Sphere of Safety.

Send today for the fully illustrated and informative Prismo Bulletins.

THE PRISMO SAFETY CORPORATION
HUNTINGDON, PA.

alone converting our single, center-suspended signals to corner-post type. Where these suspended signals are in operation, we do not have local controllers to time the intervals in accordance with conditions obtaining at any intersection. All such signals in the system change colors at the same time. Such conditions are rather common. With continually increasing volumes of traffic attempting to negotiate the central business districts of our American cities, we must rehabilitate obsolete traffic-signal systems. Not to do so retains another factor causing intolerable congestion, with the result that the central area also will become "obsolete" with business gravitating to the outer areas of the city.

W. C. Brandes
Traffic Engineer
Dallas, Texas

Oakland Has Modern Signals

To the Editor of The American City:

Apparently much interest has been aroused by J. A. Carrothers' statement concerning obsolescence and inadequacy of traffic-signal systems in the central business districts of most cities. Before complete acceptance, let us discuss the change in terms of the signal system in the central locations in the city of Oakland.

The first yardstick for signal inadequacy is visibility (the most modern of signal systems cannot be effective unless they can be seen), and not the speed by which the signals move traffic through a business district. Speed is indeed essential and we are including in our present inter-connected traffic-signal system one of the newest centrally located controllers and intersection controllers at 26 intersections. It is believed that this will give more flexible signal operation where better traffic progression and more adaptability for changing cycle lengths are needed to fit the peak and off-peak traffic conditions. It should eliminate the only obsolete feature of our present system. With it we can facilitate the movement of traffic, *providing the signals are visible*—but not unless.

Observance of these signals is dependent on visibility and enforcement. Since we believe our present system is visible, we expect it to be adequate. We have all far-side three-light signal heads 18 inches in from the curb some 12 to 14 feet high. Far-side left heads are also used if there is any impairment of visibility of the right heads.

Further, at any locations where the vehicular signal head cannot readily be seen by pedestrians, two-light 8-inch-lens pedestrian heads are used on a 6-foot pedestal, one lens red and one lens green with a "walk" shield over it.

We use louvres in front of the lights in special situations where we have combination arrangements of vehicular and pedestrian signals and where it is hazardous for traffic or pedestrians to observe the other lights. Because louvres impair some of the "punch" value of the signal heads they are used only where needed.

Overhead hanging signals must be 18 feet high and we are of the opinion that this does not provide good visibility from modern automobiles, particularly in starting a car that has pulled up to an intersection awaiting the signal change for "go."

These are our reasons for believing our arrangement is modern and adequate and accomplishes its purpose of controlling both pedestrian and vehicular traffic. Observance is better than normal in Oakland.

Probably most cities have some phase of their signal systems in their central business districts that might be inadequate or obsolete (at least to some degree) measured by any of the standards which they wish to attain. However, it does not appear that all cities have the same problems. Some can be "modernized" more easily than others.

J. A. Czizek
Traffic Engineer
Oakland, Calif.

Kansas City, Mo., Getting Modern Signal Equipment

To the Editor of The American City:

I am afraid I shall be forced to agree that practically all American cities are now operating with obsolete traffic-signal systems in their central areas.

Traffic-signal controllers used in co-ordinated systems have the refinement and flexibility to permit daily or even hourly modification of signal-timing sequences to fit varying conditions throughout the day.

The present systems require that signal-timing programs be adopted in an attempt to meet a number of conditions, and as a result, no condition can be entirely met. New equipment has been developed by manufacturers in the last few years that will allow a much more selective area of signal timing, but to date many cities have not been able to take advantage of these refinements. A large part of this inability is due to slow deliveries of equipment.

Kansas City is in this position at the present time, but we are anticipating delivery of equipment within the next two or three months that will permit us more accurately to time our co-ordinated traffic signal system in our central business area and two such similar systems on major through routes serving the central business area. We are confident that this will enable us to provide for much more efficient use of our existing street system.

T. J. Seburn
Traffic Engineer
Kansas City, Mo.

Modern Means Visible Signals

To the Editor of The American City:

I read with interest various communications which you have received and published in the November issue of The American City and am particularly glad to see the interest which has been shown by various traffic engineers.

While I believe that the readers will understand the photographs of our installations which you have published, I observe that the headings for the "Walk" and "Wait" signals and the vehicular signals have been reversed, and I hope that this will not cause too much confusion to your readers. In any event, I appreciate your publishing these pictures because I think they show quite clearly what our installation is providing in the way of effective traffic control. The sketches furnished by W. E. Schwanhausser showing the improved visibility of the overhead type of traffic signals are quite effective.

A trip around the country I made two years ago convinced me that traffic-signal installations are as obsolete in many of our large cities as the horse and buggy. A modern traffic-signal system must provide the best possible visibility to the motorist and the maximum safety to the pedestrian.

I realize that many states have no laws governing the movement of pedestrians and they do not have to obey traffic-signal installations. In such cases there is no reason to provide special pedestrian signals. I believe these laws must soon be revised to compel observance by pedestrians.

Many large cities in the country still have center-suspended, two-light traffic signals. Such installations in no way conform with standards adopted by the Institute of Traffic Engineers and the Bureau of Standards. In most cases I think you will find that these installations are maintained and extended because of the great cost in establishing a standard installation.

F. T. Fowler
Traffic Engineer
Portland, Ore.

"Intelligent" Signals Do More Than Speed Traffic

To the Editor of The American City:

The traffic-signal system should first be so flexible that it can be regulated to take care of different traffic demands throughout the day. Rather than say that a test of a signal system is the speed at which it will move traffic, it might better be said that the test of a traffic-signal system is "how expeditiously will it handle traffic?"

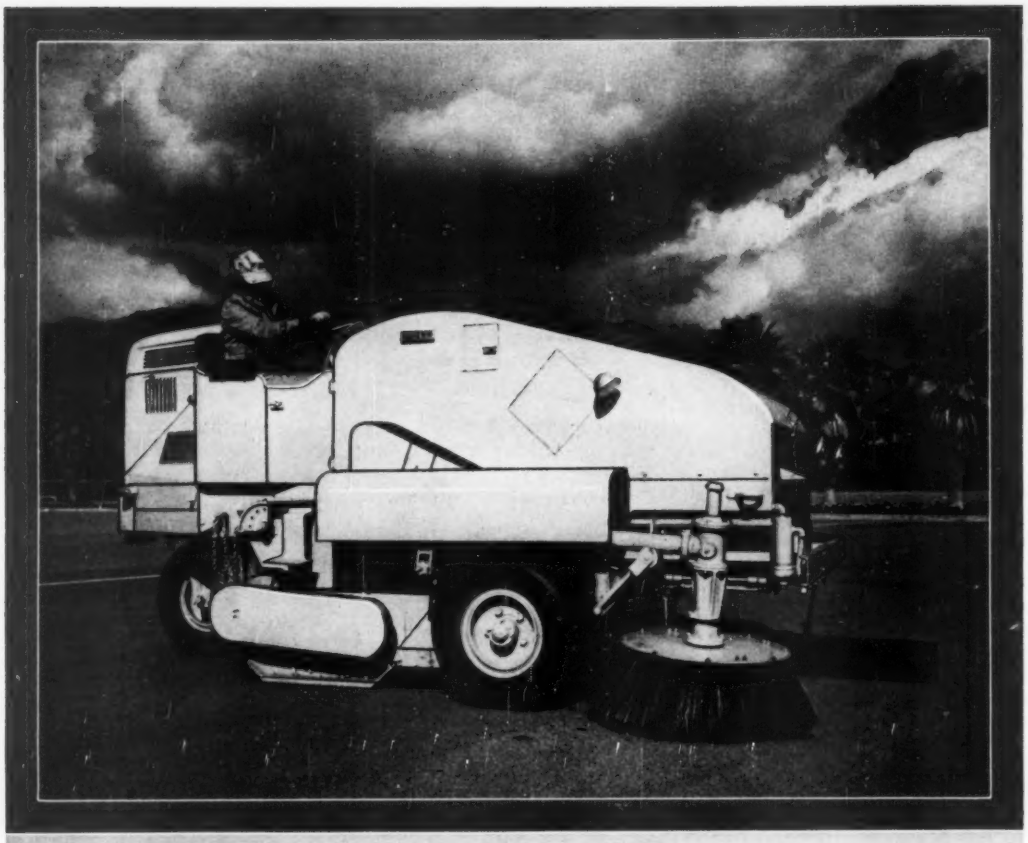
Speed is essential, of course, to the movement of high volumes of traffic, but, on the other hand, a good signal system may actually be used to reduce speed or to control it.

For traffic-signal inadequacy let us consider those in downtown Denver. Here, we have 69 intersections carried on one controller. It is true that the controller turns the lights—red, amber, and green at predetermined intervals, but it has no flexibility. As an example, let us suppose that at Champa and Sixteenth Streets traffic is evenly divided on both thoroughfares; therefore, on one total time cycle, 50% of the green is distributed to each street. Now, suppose that two blocks down the street, at California and Sixteenth Streets, 70% of the traffic is on Sixteenth Street and only 30% on California. The controller must be timed to the heaviest intersection. Therefore, a fifty-fifty split is in effect and must be used on every intersection, regardless of the individual breakdown of traffic flow.

The lights are timed for a speed of about 18 miles per hour, satisfactory during the peaks but too slow after 10:00 p.m. Vehicles must stop at nearly every light.

A good traffic-signal system must have other features than those which provide red, amber, and green lights for traffic. They must be so constructed that, in case of trouble, the entire system need not be shut down but only that portion on which trouble exists. It must provide for satisfactory means of detecting the location of trouble and providing for immediate repairs.

All too often municipal officials think that one four-way traffic signal head hung



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the WAYNE MOTOR SWEEPER

During the past 18 months more than 80 American cities* from Coast to Coast have wisely chosen the WAYNE MOTOR SWEEPER in preference to any other street sweeper. The WAYNE is built by skilled workmen who have actually mastered street sweeping problems, so when you choose the WAYNE, you're sure to get the best for your money.

The WAYNE is the *only* motor sweeper with a Ford V8 Industrial Engine, heavy-duty truck transmission and differential, making it easy to get parts that fit right and last longer . . . besides, your WAYNE distributor, located near you for your convenience, has a WAYNE-trained service man to give you immediate assistance and a ready supply of all WAYNE parts for replacement. What's more, the WAYNE MOTOR SWEEPER is ready now for *immediate* delivery!

Write for "A Clean Sweep," fully descriptive booklet telling all the facts about the WAYNE MOTOR SWEEPER.

*Names upon request

WAYNE MANUFACTURING CO. *Motor Sweepers • Air-Cooled Engines • Motor Scooters*
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from a wire in the middle of a street is adequate traffic control. The installation of signals should take into consideration, first of all, visibility to the driver or pedestrian. Personally, I am much sold on the overhead-type traffic signals. An instance in Flint, Mich., where I was located prior to coming to Denver, bears out their value. At an intersection having over 100 accidents during the war, 17 of which involved injuries and two fatalities, accidents were reduced 68% in one year simply by taking two lights off the corner posts and hanging them from an overhead span wire. This placed the signals over the moving lanes of traffic, away from buildings, neon lights, and parked trucks.

Too often officials try to economize by eliminating signal-light indications. As an example, installing one four-way head on an overhead span wire, instead of two heads which normally would be installed on the corner posts, with a single head. If the light burns out, there is no indication left and accidents result. With dual heads, when one light fails, there is generally another indication left.

There is much lacking in a system that attempts to use just vehicular indications to control heavy pedestrian movements. A system should take care of pedestrians as a problem entirely separate from the vehicular flow.

The city of Denver has a great many installations of signals put in under a political demand. They cannot be justified on the basis of traffic movement. As they are the old fixed-time type, traffic is actually impeded on busy streets when the lights change to cross streets which carry little or no traffic. The use of traffic-actuated signals would overcome most of the objections, except the cost of a signal that is not needed. In isolated locations the use of semi- or fully actuated controllers would do a lot to expedite the movements of traffic and assign safely the right-of-way to drivers. Traffic-actuated signals have been in use for a great many years in the past and yet we just installed the first traffic-actuated signal in the state of Colorado here in Denver last week.

In Denver, we need 300 additional traffic lights immediately. We are installing 46 this year, 50 to 75 next year, and probably 100 the following year. Those are new installations and we certainly will not have time to do too much in modernizing the existing installations. We have asked for $80,000 with which to modernize our downtown system. If the money is not available, Denver, like other cities, will continue to struggle along with an outmoded inefficient system that is actually a detriment to traffic and does little, if anything, to expedite traffic movements.

HENRY A. BARNES, *Director*
Traffic Engineering Div.
Denver 2, Colo.

A Plan Speeds Traffic

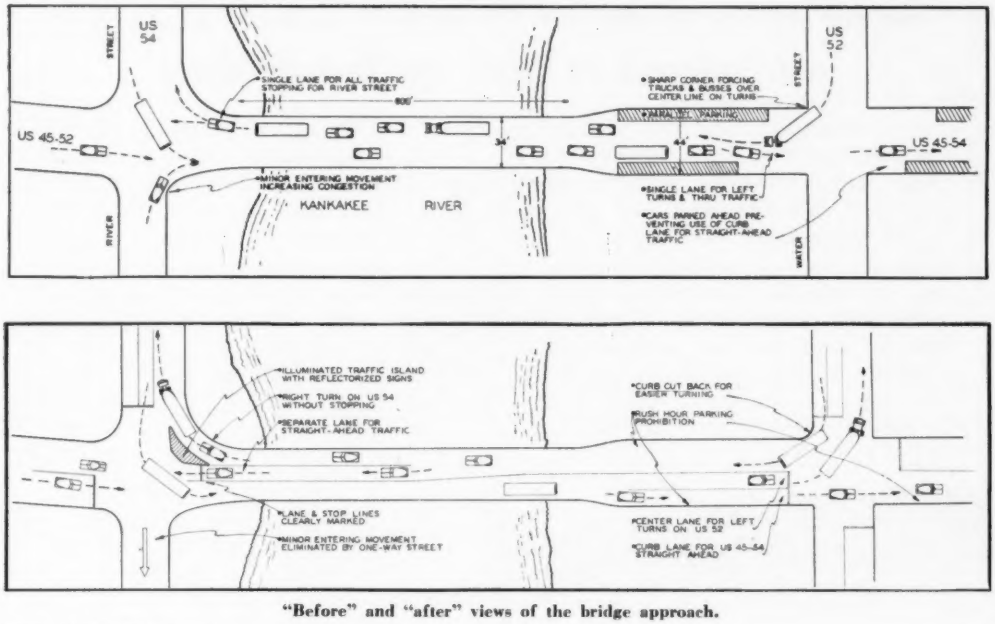
MOTORISTS and officials alike in Kankakee, Ill., are hailing the new traffic movement plan for vehicles using Washington Avenue Bridge, the city's only north-south link across the Kankakee River. Recommended by George W. Barton, Engineering Director of Associated Consultants, Evanston, Ill., who was employed by the city as traffic engineering consultant, the plan has greatly accelerated the flow of traffic across the span since it was adopted in August 1948.

Only 34 feet wide at its north end and 44 feet wide at the south, the bridge was twice daily the scene of traffic pile-ups as Kankakee residents living south and working north, and vice versa, traveled during the early morning and later afternoon hours. Often cars were jammed up for several blocks at either end of the bridge as they crept along turtle-fashion.

Here are the improvements that were adopted by the city:

Previously, unmarked pavement carrying one lane of traffic in each direction was marked into three lanes. A separate left-turn lane was provided at the south end of the bridge and a right-turn lane at the north end.

An island was built at the north end to divide traffic going straight ahead (stop required at intersection) from that turning right (no stop required). As studies revealed, the two main streams of bridge traffic were to the left at the south end and to the right at the north end. Thus, the provision


US 54
STREET
SINGLE LANE FOR ALL TRAFFIC STOPPING FOR RIVER STREET
800'
SHARP CORNER FORCING TRUCKS & BUSSES OVER CENTER LINE ON TURNS
NIGHT-TIME PARKING
US 52
STREET
US 45-52
US 45-54
MINOR ENTERING MOVEMENT INCREASING CONGESTION
KANKAKEE
RIVER
SINGLE LANE FOR LEFT TURNS & THRU TRAFFIC
CARS PARKED AHEAD PREVENTING USE OF CURB LANE FOR STRAIGHT-AHEAD TRAFFIC
RIVER
WATER
ILLUMINATED TRAFFIC ISLAND WITH REFLECTORIZED SIGNS
RIGHT TURN ON US 54 WITHOUT STOPPING
SEPARATE LANE FOR STRAIGHT-AHEAD TRAFFIC
CURB CUT BACK FOR EASIER TURNING
RUSH HOUR PARKING PROHIBITION
LANE & STOP LINES CLEARLY MARKED
MINOR ENTERING MOVEMENT ELIMINATED BY ONE-WAY STREET
CENTER LANE FOR LEFT TURNS ON US 52
CURB LANE FOR US 45-54 STRAIGHT AHEAD

"Before" and "after" views of the bridge approach.

Philadelphia to add another TROLLEY COACH LINE

Recent survey on one line shows that TROLLEY COACHES are Preferred by Riders and Householders!

The Philadelphia Transportation Company is planning to convert its fifth line from rail to trolley coach service. When the changeover is made, PTC will be operating 175 of these modern, rubber-tired electrics. One reason why trolley coaches are becoming increasingly popular with Philadelphia's transit management is —THE PUBLIC LIKES THEM. A survey was taken on one of the lines, recently converted from old-type street cars, to determine public reaction to the change. The survey was conducted on the coaches, and from house to house along the line. The results indicated that 98.3% of both riders and householders preferred the new instead of the old equipment, 73.2% considered the service better, and 71.5% preferred trolley coaches to other types of public transportation vehicles. Figures speak for themselves — no wonder PTC is planning to expand this popular service.

2954-T

Ohio Brass

MANSFIELD, OHIO

CANADIAN OHIO BRASS CO., LTD., NIAGARA FALLS, ONTARIO

of separate lanes aided the traffic flow considerably.

The curb at the south intersection (Water and Main Streets) was rounded to enable vehicles (especially trucks) to turn the corner more easily.

The cost to the city was $450 for labor and materials to mark the pavement, round the curb, and construct the island. The savings are in time.

Formerly, two officers spent three hours each day directing and untangling traffic on the bridge during the rush hours. Their services are no longer needed there, and they have been assigned to other duties during these hours.

Before the new traffic plan was put into effect, each car lost on the average two minutes because of bridge congestion. There are about 1,000 vehicles per hour for one- and one-half hours per day. Time saved in the rush period alone amounts to 3,000 vehicle minutes, or 50 vehicle hours per day. Estimating 1.2 persons per car gives a saving of 60 man-hours per day. If this time is worth $1 an hour, there the saving amounts to $60 per day, or $18,000 in a work year.

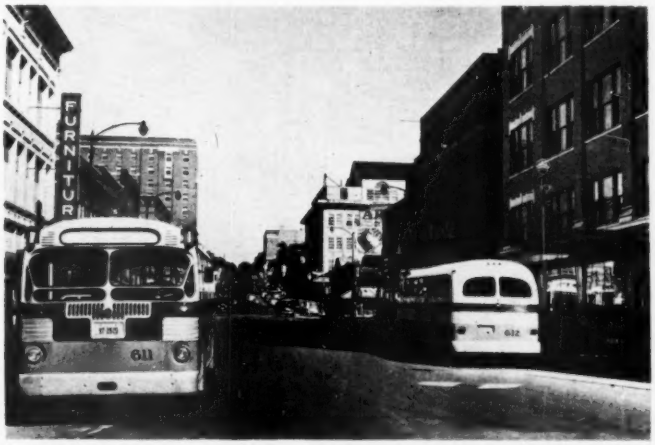
New York Needs Parking Meters

INSUFFICIENT consideration has been given to the feasibility of installing parking meters at specified locations in the City of New York. The Police Department believes that the installation of parking meters will delay traffic on heavily traversed thoroughfares. The Department's recommended control measure here is to ban all parking during normal business hours. There are a number of areas in the city in which the installation of meters would merely serve to add to the congestion. But from the traffic standpoint, our thoroughfares range from the normally fluid to the highly congested. Between these extremes there are thoroughfares where curb parking for a limited period of time is a reasonable use of the roadway space. It is here that the parking meter has proved its worth, both as an effective device for controlling time-limit parking and as a revenue producer.

Hundreds of American communities of varying sizes have experimented with parking meters with good results. Of the cities with populations in excess of 500,000, an increasing number of the fourteen have meters operating. The installation of parking meters in selected areas of New York City will not necessarily prove successful merely because it has proved so in other cities. But it is worth a fair trial.

From the Report of the City Budget Commission to Mayor William O'Dwyer, New York, October 1, 1948.

New Look in Sioux City



Nebraska Street, Sioux City, Iowa, has been all barbered up with new street lighting, new paving and new buses, as a result of activities of the Downtown Area Improvement Committee of the city's Chamber of Commerce, Harold L. Murphy, Executive Secretary. The new pendant luminaires are suspended from 4-foot brackets mounted 23¾ feet above the pavement.

Driver-Warning Plan That Works

A "POINT SYSTEM" correcting unsafe automobile drivers in Connecticut is proving successful and gaining voluntary support from the drivers themselves. The point scale includes:

Violation	*Points*
Fatal accident involvement if held responsible	10
Operating under influence of liquor	10
Evading responsibility	8
Operating while under license suspension	7
Reckless driving ($50 fine or over)	6
Reckless driving (less than $50 fine)	4
Speeding	3
All other convictions for moving violations	2
Accident involvement responsibility, no conviction	1

When any driver has three points against his driving record he receives a warning letter calling attention to his standing with the State Motor Vehicle Department and informing him that the addition of two more points will necessitate his visiting the Department's driver clinic for a conference.

This conference is a friendly, man-to-man talk with a trained representative of the clinic. A re-examination of driving knowledge and ability may be suggested, a new eye test may be given, or bad driving habits pointed out.

If an erring driver has gone through the first two stages, the addition of one more point against him, or a total of six, will bring him before a hearing section, where license-suspension action is taken. Failure to appear results in immediate suspension of the operators' license.

System Proves Popular

During the first year of Connecticut's point system plan, the Motor Vehicle Department screened 6,742 records and sent warning letters to 4,990 persons, informing them that they had begun to accumulate careless driving records. Among these drivers, 693 were called for conferences and had their records reviewed. Another 889 were summoned to license-suspension hearings.

"Although many have been called, few have been suspended," says Colonel Elmer S. Watson, State Commissioner of Motor Vehicles. "Some have been placed on probation for six months. Others were warned because their scores were past the three-point stage when the system went into effect. Each mail brings requests for voluntary reviews of records. Drivers are becoming increasingly interested in what is charged against their operating records"

DUAL — one of the best known faces in America
INSERT COIN
2 HOURS
1 TO 10 PENNIES OR 2 NICKELS
9 A.M. TO 6 P.M.
100
DUAL
DUAL
The ORIGINAL Parking Meter
SAN DIEGO
BOSTON
NEWTON
ATLANTIC CITY
WILMINGTON
PLUS VALUES!
These two words explain why Dual Parking Meters have won the carefully considered acceptance of hundreds of cities and towns throughout the nation, only a few of which are indicated here. For full details on DUAL AUTOMATICS send for Bulletin DU-502.
THE DUAL PARKING METER COMPANY
A Subsidiary of The Union Metal Manufacturing Company
Milford Bldg. Canton 2, Ohio
. . . . YOUR BEST ANSWER TO EVERY PARKING PROBLEM

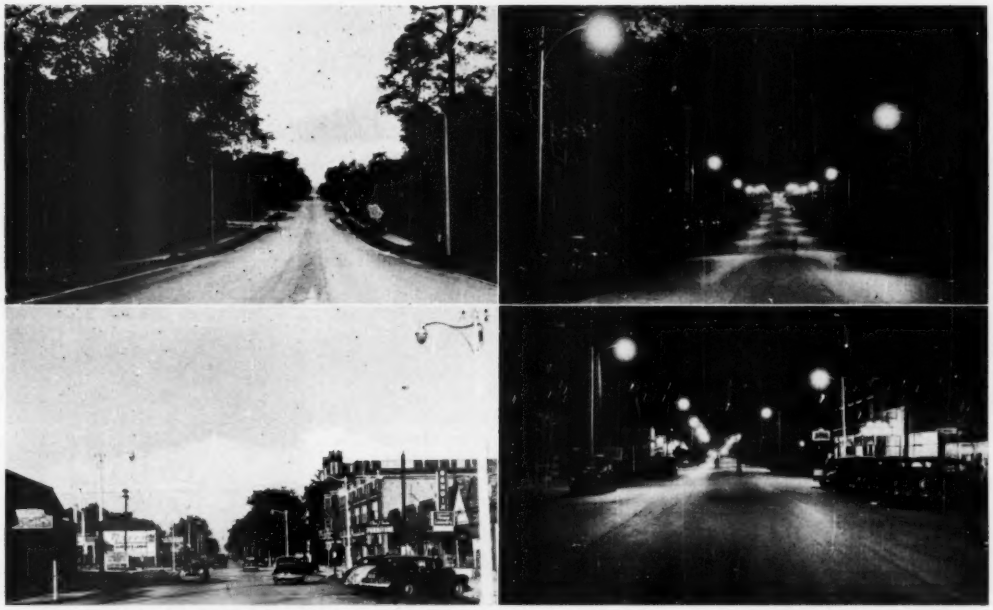
Outdoor Lighting

Reading Between the Poles

By RICHARD J. SEITZ
Public Service Company of Northern Illinois
Northbrook, Ill.

and

G. W. COLMAN
Lighting Division
General Electric Company
Chicago, Ill.



Coming in to Waukegan, Ill., day or night along Washington Street. The lights are mercury vapor on concrete poles.

"THIS is a magnificent improvement for the entire city," said Frank Wallin, Mayor of Waukegan, Ill., when, on the night of June 15, the citizens gathered to participate in the inauguration of their first new mercury-vapor street-lighting installation. New lights were installed on 1½ miles of Washington Street, one of Waukegan's main feeder arterial highways.

The installation originally was planned as an incandescent system. The change to mercury vapor came about, however, while the contractor was awaiting the delivery of poles, luminaires, and other necessary equipment. During this period, members of the City Council heard of a nearby mercury-vapor installation. A delegation composed of Mayor Wallin, aldermen, the city engineer, the city electrician, and representatives of the Chamber of Commerce made an inspection tour of the mercury-vapor system.

After the tour the Mayor, in a report to the City Council, told of the amazing brilliancy from this new type of lighting. "It was possible," he said, "for members of the delegation to read typewritten copy while standing between poles." Upon recommendation of the City Council, the state approved the change at an extra cost of $3,550— or a total installation cost of $29,043, all payable from the state motor fuel tax funds. The additional $3,550 was necessary because the original plans for incandescent lighting had progressed to the point where some of the work already completed had to be abandoned. Actually, mercury-vapor lighting is not more costly than incandescent lighting.

The mercury-vapor system, installed by the Monroe Electric Company of Chicago, was planned and installed under the direction of T. P. Nelligan, City Engineer. The illumination consists of 69 General Electric luminaires, each containing a 400-watt 16,000-lumen mercury lamp. Each unit is mounted on a 26-foot American Concrete Spuncrete pole with a 6-foot upsweep bracket and two pin-feeder arms. Sixty of the poles are the Hy-lite senior type, and nine are Strain poles of the Colonial type, Design A626. The units are in staggered position located approximately every 75 linear feet, or about 150 feet between poles on either side of the street.

The 69 lamps provide an average of 1.3 lumens per square foot along the 15-block stretch of pavement. Visibility and pavement brightness are pronounced, yet so diffused that a smooth

effect meets the eye. Glare from this type of mercury lamp has been minimized to the extent that the brightness is pleasing not only to pedestrians and motorists, but also in the residential section through which the system passes.

There are only two multiple circuits in the system. Each is fed from a central point and operated at 240 volts. The wiring is of the overhead type, each circuit using two single-conductor #6 copper weld wires. The system is operated by photoelectric cells which, in turn, operate contactors in both circuits.

Prior to the new mercury installation, lighting on Washington Street consisted of 19 "overhead-type" street-lighting fixtures. These were suspended from utility poles and located primarily at intersections. Plans are underway for more street-lighting installation of this same type.

Spartanburg's Fluorescent Street-Lighting System

By SUSAN NAVES
Reporter, The Spartanburg Journal
Spartanburg, S. C.

THE fluorescent white way in thriving industrial Spartanburg, S. C., now has 124 units, each of twin 60-inch 100-watt tubes. Said to be the first such system in the nation, it was designed in 1939 by A. M. Miles, then city electrician.

The base of the twin-tube lights is of cast aluminum set atop a concrete post at right angles to the curb line. As the system was, of necessity, an experiment, particular care was taken to guard against injury to cars or pedestrians in case the fluorescent unit was jarred out of place.

Assurance that the tubes will start even in cold weather is afforded by the use of two starters in parallel for each lamp. One is the Sylvania Mirostat M-6 with bimetallic armature that normally makes contact when lamps are out, but breaks the contact when the arc has struck. If however, a momentary interruption should occur after the contacts have broken, the consequent high voltage induced by the series isolating transformer might arc across the gap and destroy the heater switch. For this reason there is another device in parallel with the Mirostat which takes care of this exigency. It is essentially a modified (reversed) form of General Electric "Watchdog" starter, which is a gaseous tube that will flash across if the voltage rises, to the open circuit at the Mirostat.

In addition to these units, a pair of plug receptacles is provided. One is in parallel with the primary of the transformer and is normally left open; it has proved useful for making tests of the fixtures. The other is inserted in the primary circuit of the 6.6/1.45-ampere series isolating transformer and is normally bridged. This has proved successful in locating faults in the cable between successive transformers.

In addition to the two-tube fluorescent bracket-type fixtures lighting Spartanburg's main business district, Mr. Miles has invented and installed single-tube fluorescent lights on one residential street in the city. Owing to some technicality by which a contract with Southern Bell Telephone Company and Duke Power Company, on whose poles the lights were installed, was not obtained, these lights were not turned on for more than three years after their installation on an experimental or trial basis.

Despite the fact that the residential-type fluorescent light stood unused for three years, when the lights were finally turned on, all burned without exception, and are still burning nearly a year later.

The city is doing its own work under the supervision of the present City Electrician, Dean Mabry. City Manager T. Edward Temple sizes-up the new lighting system this way: "This lighting, in addition to economy of lighting, gives a beautiful white light. The rain keeps the vertical tubes clean. The exposed fluorescent tube is easy to replace."

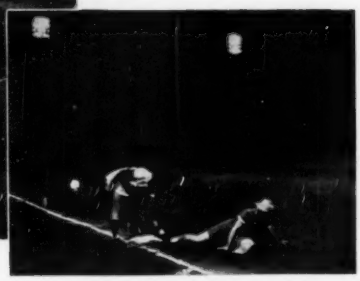
The color of the light may be determined by simply inserting the color of tube desired. This is an advantage, of course, in making arrangements for Christmas lighting. Our experience shows that a fluorescent tube under normal conditions has a life of approximately one year. Plans are under way to double installation of the system in Spartanburg in 1949.

Former City Electrician Miles, now engaged in electrical contracting at 190 East Wood St., Spartanburg, although he has patent rights on this lighting system, has granted the City of Spartanburg the privilege of extending its system because he made partial installation as city electrician. Mr. Miles and the Randall Electric Company of Spartanburg have just completed installation of about 84 of the new fixtures in Walterboro, S. C., about 200 miles south.

Twin-tube fluorescent lighting installation at Spartansburg, S. C., against the Confederate Soldiers' Memorial.

A pioneer fluorescent street-lighting installation.

Kenosha, Wisconsin—
55,000 people—5 lighted parks

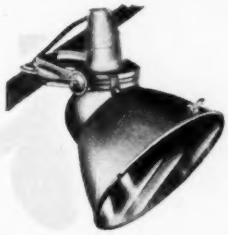


To give an idea of the lighting at Simmons Field, this photograph was taken at F5.6, 1/5th second, on Super XX film.

This is Simmons Field in Kenosha—one of Wisconsin's stand-out ball parks and one of *five* lighted recreational areas in this city of 55,000 population. Together these lighted parks have drawn as many as 20,000 people in one evening—have been instrumental in cutting juvenile delinquency and have greatly reduced vandalism in the city parks.

Simmons Field itself—named after Simmons Company who donated the land—seats 2600 and has averaged 1500 admissions per night. Our part of course was the lighting. Simmons Field uses a standard G-E "160" lighting system—planned, ordered, and installed according to "the book."

YOURS FOR THE ASKING—This is "the book" that contains 38 complete floodlighting plans for sports and recreation. One is the "160" lighting system used at Simmons Field—160 G-E floodlights on 10 80-foot steel poles—complete with a list of all material required down to concrete and paint. Among other plans are tennis courts, volley ball and 12- to 48-lamp softball fields. *Address Apparatus Dept., General Electric Co., Schenectady 5, N. Y. and ask for GET-1284.*

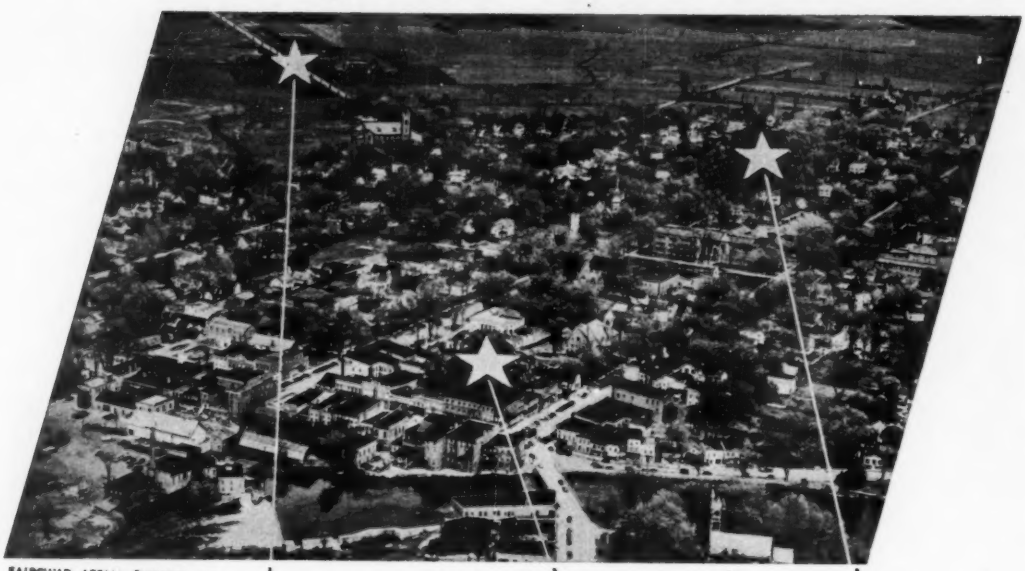


THE SPORTS LIGHT—This is the floodlight used at Simmons Field, the G.E. L-69. It gives more light per unit, more light per watt, is easier to install and cheaper to maintain than any other comparable unit. It's so good that four major-league parks use it, so economical that it's the favorite for sand-lot softball. Bulletin GEA-4835 gives complete description and prices.

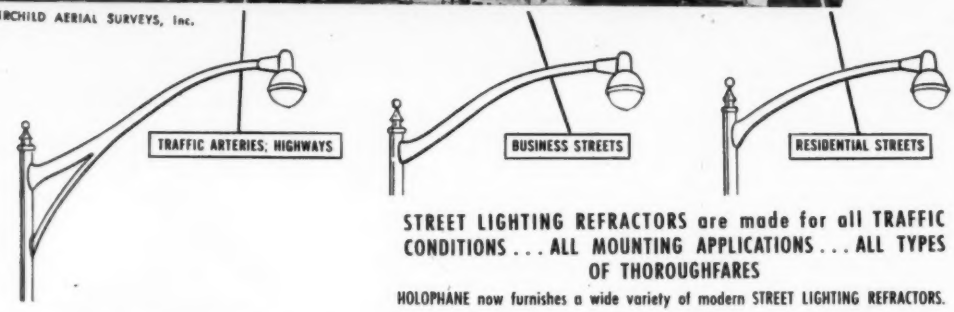
GENERAL ELECTRIC

661-126

Standardize on HOLOPHANE REFRACTORS for Every STREET LIGHTING APPLICATION



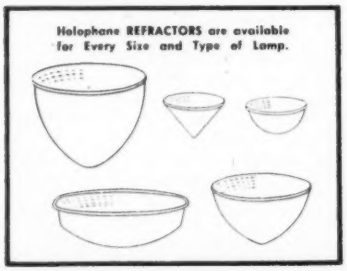
FAIRCHILD AERIAL SURVEYS, Inc.



STREET LIGHTING REFRACTORS are made for all TRAFFIC CONDITIONS . . . ALL MOUNTING APPLICATIONS . . . ALL TYPES OF THOROUGHFARES

HOLOPHANE now furnishes a wide variety of modern STREET LIGHTING REFRACTORS. These are available for narrow and wide thoroughfares . . . for every kind of traffic condition . . . and for all job mounting applications.

STANDARDIZE on REFRACTORS . . . They provide more visibility for every dollar spent. The more efficient light control of the HOLOPHANE REFRACTOR puts the light where it is most needed on the street—building up pavement brightness with greater uniformity of distribution. The net result is better street lighting, in terms of less night accidents and deaths, improved civic safety conditions, and more pride in the community.



HOLOPHANE COMPANY, Inc.

Lighting Authorities Since 1898 · STREET LIGHTING DEPARTMENT, NEWARK, OHIO

THE HOLOPHANE COMPANY, LTD., THE QUEENSWAY, TORONTO 14, ONTARIO

GOLDEN JUBILEE — Holophane — SINCE 1898 — SCIENTIFIC ILLUMINATION

Twice as Much Light for 15 Cents Per Person

By D. G. WEIFORD
Administrative Assistant
Norfolk, Va.

Newly lighted street in Norfolk, Va.

THE City of Norfolk purchases its street-lighting requirements from the Virginia Electric and Power Company on a contract providing for an annual payment per lamp. The exact amount per lamp varies, of course, in accordance with lamp size. The power company furnishes, installs and maintains the street-lighting system.

At the beginning of 1947, Norfolk's street-lighting system consisted of 4,100 lamps totaling 9,668,000 lumens, an average of 2,300 lumens per lamp. The annual cost to the city was $75,600, a per capita cost of 0.33 based on an estimated population of 232,000.

This system, of course, was grossly inadequate for a city of Norfolk's size. This situation had been keenly realized for some time, but the scarcity of materials during the War years, and the necessity for the "brown out" precluded any increase in lighting facilities.

Early in 1947, the General Electric Company was called in to make a thorough study of the whole lighting problem. Their final report stressed the fact that the city's lighting was below standard, and outlined in detail why it was essential that immediate attention be given to an overhaul of the system.

The report contained a series of general recommendations followed by specific advice for every street in Norfolk, and was adopted by city officials as a guide for future installations and modifications.

On January 1, 1948, the city and the Virginia Electric and Power Company entered into a new 10-year contract for municipal electric service providing for a reduction in street-lighting rates, a minimum lamp size of 2,500 lumens, and a five-year-modernization program for certain areas of the city.

The new contract will result in an annual saving to the city of $39,000. In addition, VEPCO made a cash refund to the city of $64,000 based on making the new rates for power retroactive to August 1, 1946, and allowing refund of the difference between the old and the new rates.

The first step in the program was the change of all 1,000-lumen lamps to 2,500-lumen and the installation of new-type reflectors in place of the radial-wave reflector which had been standard for the smaller lamp sizes. There were over two thousand 1,000-lumen lamps in service, mostly in the residential sections. Work has been slowed considerably by the fact that most of the circuits had to be rebuilt to accommodate the larger lamp size, but, at present, over half of the 1,000-lumen lamps have been replaced by the 2,500-lumen.

The first whiteway street lighting to be authorized in conformance with the new standards was 21st Street, a rapidly growing retail business area away from the downtown district. Because of the difficulty in obtaining ornamental street standards, this installation has just been completed.

City Manager C. A. Harrell has since authorized VEPCO to install new street lighting in the downtown business district in accordance with the recommendations in the report. This installation will require sixty-one 15,000-lumen, two hundred twenty-three 10,000-lumen and ninety-six 6,000-lumen lamps, and will provide an average of 2 footcandles on Granby Street (the main downtown street) and 1.5 footcandles on the other streets. Pendant-type luminaires mounted 28 feet above the street will be used, replacing obsolete upright units. The re-lighting of several arterial streets has also been authorized.

At present the number of street lights in service has increased to 4,372, for a total of 12,392,000 lumens, or an average of 2,836 lumens per lamp. The cost per lamp per year has decreased from $18.41 to $17.97 and the cost per 1,000 lumens overall has decreased from $7.66 to $6.36 per year.

When the present authorized lights are installed, there will be 5,078 lights in service for a total of 17,987,000 lumens, an average of over 3,500 lumens per lamp. The cost to the city will be only $6.14 per 1,000-lumens per year and $0.48 per capita. General Electric equipment is being used throughout.

Service Truck for Street and Traffic Lights

Especially designed truck on 1½-ton Reo chassis. Cupboards carry 40 sets of globes and lamps. The 30½-foot ladder, by the American Coach and Body Co., Cleveland, Ohio, is to service street and traffic lights over parked cars.

JOSLYN STREET LIGHTING

Luminaires, brackets and steel standards all engineered for

HIGH OPERATING EFFICIENCY DURABILITY and ATTRACTIVE APPEARANCE now available on

QUICK DELIVERY

The 25′ JOSLYN STEEL POLE with 6′ bracket

The 25′ pole with 6′ bracket and base having 3″ x 5″ hand hole, as illustrated, is now carried in stock in our Chicago plant. . . . Many other designs are available for various mounting heights, bracket lengths, and with provision for mounting transformer in base or with fittings for overhead wiring. . . . The wall thickness of our poles at the base is over ¼″, giving that added assurance of strength and long life. . . . Complete information on request.

Branch offices in principal cities

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THE JOSLYN CO
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Complete Pole Line Equipment

20 NORTH WACKER DRIVE, CHICAGO 6, ILL.

MFG. AND SUPPLY CO.

Beverly Hills Incinerator

(*Continued from Page* 123)

dents. This, of course, led to the adoption of a design using direct charging from the floor over the incinerator rather than the use of a bin and crane. It also led to the need for ample furnace capacity. The load requirements at present are approximately 85 tons of refuse per day. In order to burn this in the normal 8-hour shift, and also furnish capacity for a possible daily load increase in the future, a 300-ton plant was selected. To provide this, the design specified two furnaces each rated at 150 tons per 24 hours.

Large Charging Doors Needed

It recognized also that the incinerator must handle refuse which is large and bulky, rather than in small packages placed in rubbish containers. Consequently, we specified a charging opening for the furnaces of extra size, measuring 7 feet by 3 feet. Motor-operated, refractory-lined Beaumont Birch doors cover each charging opening.

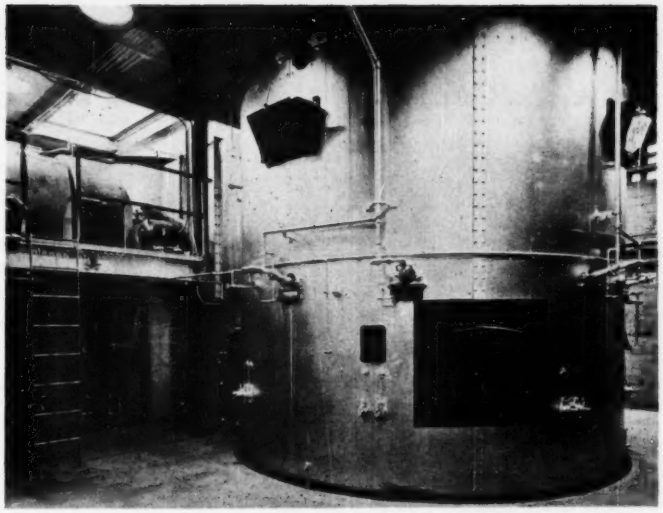
The charging floor is designed so that trucks can back into the plant and discharge the load directly into the furnace. Operating schedules show that each truck can discharge its load of refuse and leave the plant on a schedule of one every 10 minutes. If loads exceed this schedule, they can be dumped directly onto the floor and bull-dozed into the furnace whenever convenient.

The two furnaces selected to do the burning in this new incinerator are Nichols Monohearth with revolving cone and mechanical stoking arms. Each has its own combustion chamber and a Lynch Dust Filter.

Before passing through the filters, the combustion gases, after leaving the combustion chamber, are cooled by water sprays. To overcome the friction loss in the filter, each unit has an induced draft fan of 35,000 cfm capacity discharging into the incinerator stack.

To date the gravel filter media within the filters has not been required in the operation of the plant. Tests made on the gases discharged to the stack without any filter media have shown an average fly-ash content of only 0.15 grains per cubic foot, or approximately one-third of the permissible maximum set forth by the Los Angeles County Air Pollution Control Board's rigid requirement since the plant began operating.

Because of the high quantity of burnable refuse which during dry season may have only 25% moisture, the incinerator design supplies draft capacity twice that normally used in plants burning refuse which is 65% garbage and 35% combustible refuse. In the Nichols design, forced draft is supplied through the rotating cone and stoking arms as well as through the burning grates. Heated gas, when needed, is drawn from the combustion chamber and mixed, with air drawn from the building itself. Natural gas is used for supplemental fuel, a limited amount being required only during the rainy season.



The incinerator operating floor showing the furnaces and combustion chamber.

Mechanical ash handling was used because of the restricted area available for the building and ash ramps. The ash residue discharges from the ash hopper beneath the furnace into a conveyor trough filled with water to cool and quench the ashes and prevent dust or smoke. Steel flights traveling horizontally draw the ash to a bucket elevator. This in turn conveys the ash to a hopper outside the building from which it can be conveniently loaded and trucked away.

A complete installation of indicating and recording pyrometers measures temperatures in the furnaces, combustion chambers, the preheated air, and in the gas flues at the intake of the induced draft fans.

Personnel

The plant is under the supervision of the Superintendent of Streets and Maintenance; it is operated with a crew of one working foreman and six laborers for one shift a day, 6 days per week.

Final tests of the plant were made, under supervision of the consulting engineers, which demonstrated ample ability of the units to meet specifications on amount of material burned, efficiency of combustion as evidenced by the amount and analysis of ash, temperature control, man hours of labor, and ability to meet all requirements of the Air Pollution Control Board.

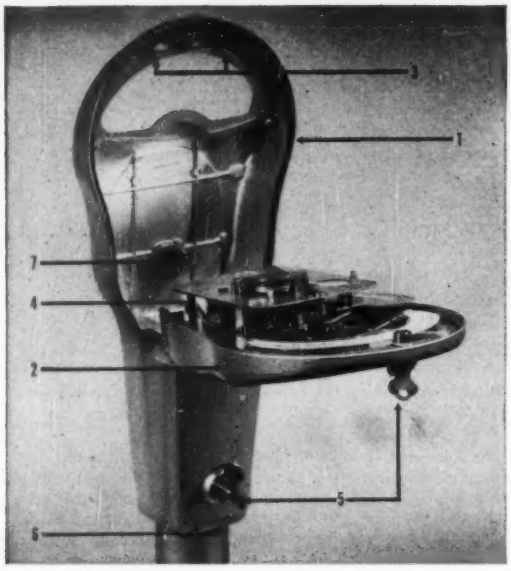
For the first six months of operation, the plant has incinerated an estimated 150,000 cubic yards of combustible refuse. In this initial period, during which the personnel became acquainted with operating procedure and when the usual "bugs" encountered in any new installation were corrected, the operating cost, including supervision has amounted to $0.12 per cubic yard of refuse. The type of combustible refuse being incinerated averages 180 pounds per cubic yard, which gives a cost disposal of only 13 cents per cubic yard.

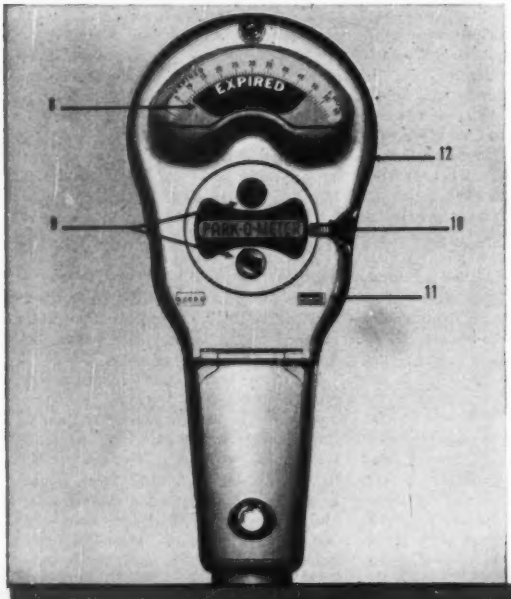
The cost of construction was covered by a 25-year bond issue of $225,000 at 2% interest, the $109,000 balance coming from general funds and which is interest-free.

However, to illustrate the low capital charges per cubic yard, the following figures are presented to show the effect had all the cost of construction been covered by a 25-year bond issue of $334,000 at 2% interest.

The average annual amortization charge on $334,000 over 25 payments would be $13,360 per year. The annual interest rate on the average unamortized value of the plant, taking one-half or $167,000 as average value, would be $3,340, making total amortization and interest $16,700. Based upon the 300,000 cubic yards of refuse currently being incinerated this works out to only $.057. Therefore the total of all direct operation, maintenance, supervision, amortization, and interest costs is well under 20 cents per cubic yard of refuse incinerated. Incineration has proven to be satisfactory and dependable and is unquestionably the cheapest method of disposal for Beverly Hills.

The New Convertible PARK-O-METER
is unequalled anywhere in mechanical excellence





1 **WEATHER-TIGHT** gasket made from Neoprene absolutely seals mechanism chamber against moisture and dust.

2 **WORK-TABLE DOOR** for mechanism chamber is solidly hinged at bottom to facilitate on-the-spot adjustments, conversions, repairs or service.

3 **REPLACEABLE GLASS.** All heavy plate glass mounted for quick removal simply by loosening screws.

4 **THEFT-PROOF.** Hinge-pin is securely fixed by set screw accessible only from inside chamber. A pin, cast integrally with case, guards against jimmying or lock-picking through coin compartment door.

5 **LOCKS.** Separate locks of different types close coin compartment and mechanism doors. Operated with separate keys.

6 **NON-REMOVABLE HEAD.** Meter head cannot be removed from post except through coin compartment door.

7 **SELF-SEALING** winding aperture. Crank opening is fitted with performed synthetic rubber seal to exclude snow, rain, dust. Easily replaced.

8 **HIGH VISIBILITY.** Expired flag can be seen from either side at 50 yards. Makes for easy enforcement.

9 **VISUAL TROUBLE SIGNAL** shows a red line through coin windows when meter has been jammed, or "slugged," and becomes inoperative.

10 **COIN-SLOT** marked with red arrow. Coin-gate lock prevents inserting coin in a jammed meter.

11 **REVENUE REGISTER** shows cumulative total in dollars and cents.

12 **STREAMLINED HOUSING** eliminates all snow shelves and provides constant and extreme visibility of time signal and Expired signal. Enforcement is made easy and economical.

ASK FOR BROCHURE

Describing Park-O-Meter's Exclusive Fix-Fast Unit Construction which permits Thumb-and-Finger disassembly for on-the-spot service and repair.

Magee-Hale PARK-O-METER COMPANY

COMMERCE EXCHANGE BUILDING • OKLAHOMA CITY 2, OKLAHOMA

Largest Sewage-Treatment Plant

(*Continued from Page 85*)

ratchets hold down the sections to concrete caps at the pile clusters.

There are about 45 feet of water above the outlets at mean tide.

The end section has two outlets and the second and third to the last sections have six others, insuring unusually good dispersion of the effluent.

Plant Headworks

The vital, but less spectacular, work at the site proper is well under way. James I. Barnes Construction Company, working on a contract of about $1,250,000, has nearly completed the headworks section of the plant, housing the mechanically cleaned bar racks, grit-removal tanks, grit washers and chlorination equipment.

At a cost of $14,020,237, contracts have been let for the primary settling system, the digestion system, the filter, dryer, and sludge-storage systems, and the effluent outfall connections.

The firm of Metcalf & Eddy, consulting engineers, made the basic recommendations on which the vast unit is being constructed as a high-rate activated sludge plant incorporating mechanically cleaned bar screens and grit-removal, preaeration, primary settling, aeration, and final settling units. Before finally being dried by Raymond dryers, the sludge will be digested, elutriated, and filtered. A separate storage building for sludge will provide truck-loading facilities, and final disposal of sludge will be by incineration or conversion to commercial fertilizer.

Digester-Gas Use

In addition to the generation of all power required at the site, all air needed for preaeration and activated sludge will be compressed by the use of digester gas as the basic fuel, with oil used only as pilot or auxiliary fuel for the nine 1,600-hp dual-fuel engines.

Five of the engines will drive generators and four will operate centrifugal compressors, using step-up gears.

Even the end-product of the "vapor-phase" system for cooling the engines, in which steam will be generated at 10 pounds' pressure, will be economically used. Pipes will carry it to each primary digester, injecting it into the sludge mixers when raw sludge is being fed from the primary settling tanks or circulated in the digesters.

Engine Cooling

For engine-jacket cooling, controlled blow-down will be employed to keep scaling at a minimum, in addition to the precautions afforded by water-softening equipment. In a system for recovering heat from both the jackets and engine-exhaust gas, water passes through the jackets, then through "waste-heat" water-heating units on the exhaust, and finally through a steam separator to the digestion system's steam mains. Water in the system will be returned to the suction of the high-temperature circulating pumps and recycled through the system.

When all the heat produced is not needed, by-passes of the type which also can run dry will cut the exhaust heaters out of the circuit.

The plant will range from an average flow of 245 million gallons a day to a dry-weather peak flow of 540 cubic feet per second.

Storm Flows

Control gates at the effluent channel of the primary settling system will divert storm-flow excesses (capable of rising to 650 feet per second) directly into the submarine outfall, providing primary treatment to all flows arriving at the plant, and making it possible to initiate primary treatment well in advance of completion of the entire plant.

An administration building for offices and laboratories, a warehouse, and a shop building are included in the plans, along with a service station and grease rack and a warehouse for receiving and storing material.

Extensive landscaping plans will transform the area into an attractive expanse of lawns, trees, and shrubs overlooking miles of the country's finest, safest city bathing beaches — beaches which Hyperion's sand dunes helped create.

The work is under the general direction of Lloyd Aldrich, City Engineer. The project design was initiated under the direction of H. G. Smith, Principal Engineer of Sewer Design, who retired in August. It is now directed by Merrill Butler, Deputy Engineer of Design. G. A. Parkes is the Senior Engineer of Treatment Plant Design. Norman B. Hume worked with Mr. Parkes in making the original basic designs and is now Assistant Waste-Disposal Engineer under W. A. Schneider, Waste-Disposal Engineer of the Bureau of Sanitation. F. M. Darnell is Senior Engineer of the Plant Administrative Coordination. Construction is under Ted Niederhofer, Inspector of Public Works. Supervising Inspectors are L. E. Meidroth and M. D. McMannus.

City Manager Plan Grows

SIXTY-EIGHT cities and four counties adopted the council-manager plan of government in 1948, the International City Managers' Association reports.

This brings the total of towns, cities, and counties under the plan to 876. The United States has 830 local governments under the plan. In addition, 3 cities in Alaska, 1 in Puerto Rico, 38 in Canada, and 4 in Ireland have this form of local government.

Adoption of the manager plan by four counties at the November elections raises to 15 the number of counties under this plan. In Maryland, Montgomery (Rockville) and Anne Arundel (Annapolis) County voters approved adoption of the county-manager plan. In Santa Clara (San Jose) County, California voters adopted a locally drafted charter for the manager plan while San Mateo (Redwood City) County, after electing its manager since 1937, will once again operate under a true county-manager plan.

Richmond, Va., with an estimated post-war population of 223,716, was the largest city in the United States to adopt the manager plan in 1948. Waco, Texas (population 55,982) and Meridian, Miss. (population 35,941), also were new additions to the list of cities with council-manager governments. Among others that adopted the manager plan during the year were 10 cities in California, 9 in Texas, and 8 in Maine.

There has been an accelerated growth in adoptions of the manager plan since V-J day, the Association observed. Before 1940, the number of adoptions of the plan by cities and towns averaged less than 16 per year. Since 1945, adoptions have averaged more than 76 per year, with 229 towns, cities, and counties choosing the council-manager plan of government in the past three years.

NAHO Gets New Executive Director

JOHN M. DUCEY has been appointed Executive Director of the National Association of Housing Officials, it was announced last month by Lawrence M. Cox, president of the Association.

Mr. Ducey was formerly Economic Adviser and Director of Planning for the Chicago Housing Authority, which is currently managing some 11,000 units of low-rental and temporary veterans' housing, and has completed the planning phase of a $22,000,000 state- and city-aided program of urban redevelopment. Mr. Ducey had been with the Authority since 1940, with a two-year leave of absence during the war when he served as an officer in the United States Navy.

The National Association of Housing Officials, at 1313 E. 60th St., Chicago 37, Ill., was organized in 1933 for the purpose of improving the administrative practices of public agencies engaged in housing activities. Mr. Ducey is its fourth Executive Director, succeeding Robert D. Sipprell, who resigned to take the post of Executive Director of the Buffalo Municipal Housing Authority.

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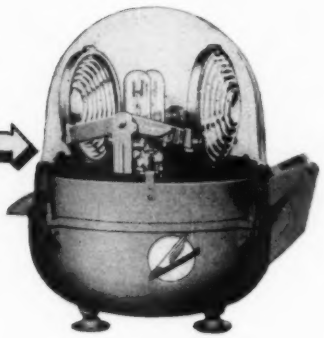
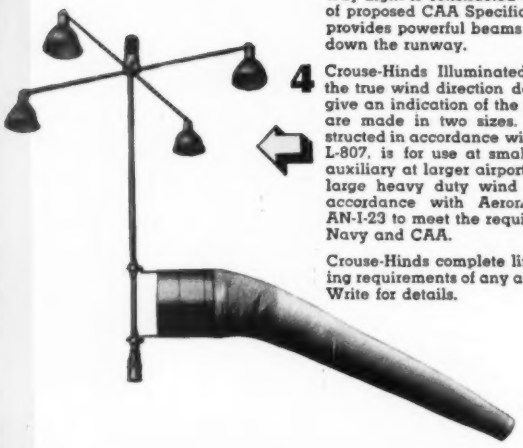


2 Type ERL Elevated Runway and Taxi Light is built to meet CAA Specification L-802. These marker lights are for use on both large and small airports, principally as runway lights (clear globe), threshold lights (green globe), and taxi lights (blue globe). A breakable insert in the mounting column will readily break upon impact.

3 The Civil Aeronautics Administration recommends that all instrument landing runways be equipped with high intensity runway marker lights to define the runway to a pilot under conditions of poor visibility — either day or night. Crouse-Hinds Type HIRL High Intensity Runway Light is constructed to meet requirements of proposed CAA Specification L-819. This unit provides powerful beams of light both up and down the runway.



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Zoning and Planning Notes

Edited by NORMAN WILLIAMS, JR.

Increased Minimum Lot Frontage—Residential Areas

NEW JERSEY. *Greenway Homes* v. *Borough of River Edge*, 137 New Jersey Law 453, 60 Atlantic (2d) 811 (New Jersey Supreme Court, August 10, 1948).

After one-family homes had been developed over a considerable portion of River Edge in accordance with a requirement (adopted in 1943) of a 60-foot minimum lot frontage, in 1947 the town authorities passed an amendment requiring a 75-foot minimum frontage and a 7,500-square-foot minimum area. Shortly thereafter Greenway proposed another development (similar to two recently built by them), first as a project of 56 homes developed on 60-foot lots, and then as a redesigned development of 48 homes with lots somewhere between 60 and 75 feet. The local Planning Board approved the latter plan, but the Borough Council rejected it for failure to conform to the 75-foot requirement. The developer brought certiorari to review the validity of the increased requirement on minimum frontage, on the ground that the necessary $500 increase in price might make the houses unsalable, that most of the town had been developed with a 60-foot frontage, and that the increased requirement was not really for zoning purposes but to provide an increase in municipal tax revenues. It also appeared that subsequently another development with lots under 75-feet had been approved, because it was laid out with curved rather than gridiron streets. The Borough argued that the increased requirement would provide more light and air and would decrease congestion and fire hazard, that ten other municipalities in the county had the 75-foot requirement, and that the reduced cost of municipal services was considered but was not a controlling factor.

The increased frontage requirement was upheld in Court as a contribution to the general welfare. In that context, any resulting decrease in the cost of municipal services and increase in municipal revenue were mere incidental advantages which could hardly operate to invalidate a proper provision. The opinion leaned heavily on a Massachusetts case upholding a requirement of one acre per house in a residential area.* The Court approached the problem with a breadth of outlook unusual in New Jersey zoning cases.

> "Nor are we impressed with the prosecutor's contention that, since most of the lots in the Borough on which houses have been built have 60 feet frontage, the increase to 75 feet is unreasonable. Indeed, if this contention were sound, municipalities would be obliged to apply to new areas the outmoded concepts visible in the old, despite the substantial advances being made in community planning. There is nothing in our law to compel such result."

In the Wachtung, N. J., zoning ordinance the rural district required a minimum lot area of 60,000 square feet for residential construction, with an exception for lots recorded at the time the ordinance was passed. In *De Moss* v. *Borough of Wachtung*, 137 New Jersey Law 503, 60 Atlantic (2d) 890 (New Jersey Supreme Court, August 25, 1948), the Court ordered an exception to be granted for a smaller lot where the recording was apparently delayed through inadvertence.

* *Simon* v. *Town of Needham*, 311 Massachusetts 560, 42 North Eastern (2d) 516 (1942).

Municipal Parking Facilities—Announcement of Locations

MISSISSIPPI. *City of Jackson* v. *Craft*, 36 Southern (2d) 149 (Mississippi Supreme Court, June 14, 1948).

A Mississippi enabling Act passed in 1946 authorized the municipal authorities in cities of over 50,000 to establish and to operate or to dispose of municipal parking facilities. Under the procedure described in the Act, the city government should adopt an ordinance reciting the existence of traffic congestion, the necessity for a public parking place, and the city's intention to establish one. After due notice, a public meeting would be held to hear objections "against the necessity of the establishment of such municipal motor vehicles parking facility"; and it was specially stated that the notice of the meeting need not specify the contemplated location of the parking facilities.

The Jackson City Council passed an ordinance containing most of the statutory language, and authorizing the Mayor (one of the three Council members) to select up to four appropriate locations and to acquire the necessary land. When eminent domain proceedings were accordingly started, the landowners defending those proceedings brought the present action to enjoin any further action under the ordinance. The Mississippi Supreme Court divided 3 to 2 in their decision favoring the landowners.

The majority opinion held that an ordinance passed under this statute must specify the location of the proposed parking facilities. As was pointed out, the elaborate provisions for public discussion of the necessity for establishing public parking places would make much more sense if it was intended that the discussion should focus on specific areas. Moreover, the provision for omitting the contemplated location in the notice of the public meeting would hardly have been necessary if the location were intended to be chosen later. On the other hand, as the dissent indicated, under the provisions for appeal from the ordinance, the question of site selection would then — quite improperly — be subject to judicial review. Since the wording of the law leaves this important point open, and since the indirect arguments as to legislative intent made in both opinions are reasonably convincing, it seems probable that the framers of the Act had not fully worked out the problem themselves.

Killing and Sale of Poultry—Residential Area

MICHIGAN. *Fass* v. *City of Highland Park*, 320 Michigan 182, 30 North Western (2d) 828 (Michigan Supreme Court, February 16, 1948), 321 Michigan 156, 32 North Western (2d) 375 (Michigan Supreme Court, May 18, 1948).

In this case plaintiffs had for some time operated a poultry market combining killing and retail sales. In the zoning ordinance adopted in Highland Park in 1942 the Business (B2) regulations allowed multiple dwellings, "generally recognized retail stores," and all uses accessory to those mentioned; and in the less restricted Business (BU) and Commercial districts the regulations permitted several additional uses, including the killing, storage, and retail selling of poultry and game. Plaintiffs' original premises were apparently placed in a C Commercial district. However, when plaintiffs subsequently proposed to open a new establishment in a B2 Business district, the Board of Zoning Appeals authorized the retail sale of poultry, but not its killing: and for some time plaintiffs continued to carry on the killing on the original premises half a mile away. Subsequently they brought an action to enjoin the enforcement of the restriction against killing poultry in the B2 district, and alleged that the killing constituted an integral part of their business of selling poultry.

In the first opinion the Court quite sensibly examined the practices in various poultry markets in Highland Park; and since killing and selling were done together in only three, as contrasted with the 104 stores selling poultry killed elsewhere, the argument that killing constituted an integral part of the business of selling poultry turned out to be not very realistic. In both opinions the specific provision permitting killing poultry in less restricted districts was held to indicate an intent to forbid such killing in the business district, and in the second the regulation was upheld as a proper measure for the protection of public health.

Revocation of Oil-Drilling Permit—After Construction Started

CALIFORNIA. *Trans-Oceanic Oil Corporation* v. *City of Santa Barbara*, 194 Pacific (2d) 148 California District Court of Appeal, June 2, 1948).

In 1941 an oil company obtained a permit (unlimited as to time) to drill one additional well in an 80-acre leased tract situated between a coastal highway and the shore near the edge of Santa Barbara. The tract was in a zone known as "One-Family Residence and Oil Drilling," and was surrounded by largely unsubdivided land. After $4,500 had been spent on the preliminaries, war was declared and the Army

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took over the entire adjacent coastal zone for artillery installations; and some damage was done to the installations by a storm during the war. In March, 1946, an amendment to the Santa Barbara zoning ordinance shifted the former One-Family Residence and Oil Drilling zone to a One-Family Residence zone, and limited oil drilling in Santa Barbara in the future to Industrial zones, with existing wells continued as non-conforming uses. When labor and materials for drilling were finally obtained, operations were resumed early in 1947. The City Council thereupon summarily revoked the drilling permit. The company brought mandamus to reverse that decision, and work was limited to a "stand-by" crew costing about $200 a day while the case took 15 months to reach a decision in the intermediate appellate court.

The opinion led off, inauspiciously, with the usual meaningless platitudes upholding an owner's right to use land for "any lawful purpose subject to the police power." Moreover, while agreeing that the building permit by itself may be a license revocable at will, the work and expenditures by the permittee were held to have transformed it into a vested property right protected against arbitrary revocation. The delays in proceeding, during the war and because of the postwar shortages, were held not to have divested the company of that right. The City Council's attempted revocation of the permit was therefore held illegal and unconstitutional. The opinion drags on at length, with elaborate summaries of previous cases on the subject.

Students From India Study U. S. City Planning

JAYANTY SREE NARASHIMA, of Secunderabad, India, received the first Master of Science degree in Town and Regional Planning granted by Iowa State College at its fall quarter graduation December 18.

There are other students from India in the United States studying city and regional planning and also architecture, but Mr. Narashima was the first Indian student to receive such a degree. He plans to enter the service of the Indian government which has requested his services in New Delhi. The Town and Regional Planning work at Iowa State is administered by a committee which includes the heads of the departments of landscape architecture, civil engineering, architecture, economics, and sociology.

Among Indian students taking planning courses at other universities are the following: Gopal K. Paknikar from Bombay, sent by the Central Government of India, who is studying for a Master's degree at the Planning and Housing Division, School of Architecture, Columbia University; Mohamed Ali from Hyderabad, sent by the Hyderabad State in India, candidate for the Master's degree in Regional Planning at Cornell University, and S. H. Kirmani, also at Cornell University. Indian students are also doing planning work at Harvard University and the Illinois Institute of Technology, as well as studying architecture at various institutions, including Taliesen, Cranbrook, University of California, and Pratt Institute.

Improving Board of Appeals Procedure

THE laxity of many boards of zoning appeals in granting variances was scored by Ralph W. Crolly, member and past chairman of the Garden City, N. Y., Board of Zoning Appeals, at a conference session on "Making Zoning Work for the Community," held by the Regional Plan Association, at the Hotel Roosevelt, New York, on November 16.

Here are the highlights of Mr. Crolly's paper:

1. There should be standardized forms used by all boards of zoning appeals for appeals for variances based on difficulty or hardship and applications for special-exception permits.
2. These forms should contain full and complete information concerning the subject matter.
3. There seems to be quite a general misconception as to what constitutes zoning practical difficulty or unnecessary hardship.
4. Too much laxity has existed in the past by many boards of zoning appeals on questions of procedure.
5. In creating an administrative board, the legislative body, to prevent its being a pure delegation of legislative power, should enjoin upon it a certain course of procedure and certain rules of decision in the performance of its functions. It is a wholesome and necessary principle that such a body must pursue the procedure and rules enjoined and show a substantial compliance therewith to give validity to its action.
6. Findings must be sufficiently definite and certain to enable the court to review the decision intelligently and ascertain that the facts afford a reasonable basis for the determination. They are not sufficient where the ascertainment of their existence is left to conflicting inference.
7. On hearings before boards of zoning appeals and other administrative agencies the strict rules of evidence which apply to judicial proceedings, particularly in jury trials, are not applicable. Much greater latitude should be allowed in admitting evidence, which in pure judicial proceedings would be excluded because of irrelevancy, incompetency, or immateriality, or because such evidence is hearsay.
8. There are hundreds of boards of appeals in the various states, composed of many different types of persons, some of whom have legal training and others not. As a result, a uniform system of procedure would and should enable such boards to function in the same manner.
9. It is suggested that legislation be enacted in New York and in all other states which don't have it, regulating and governing the procedure before administrative agencies, which would include boards of zoning appeals, such as has been done by the Federal Government with reference to its agencies, and by certain states as to state agencies.

What Should Our Capital City Be?

(Continued from Page 75)

expansion of many older existing villages, but the challenge of the hour is to shape this formless city, to give it clarity, coherence, order, and beauty, while yet there is time.

As it grows up the Potomac River to the mountains it will send off lateral shoots into the valleys that branch from the Potomac at right angles. Between relatively urban wedges can be wide tracts of productive agricultural land, zoned as such and protected against the speculative increase in land values that has devastated our suburban countryside for miles, and there can be forests, parks, and recreation facilities. Homes and work places can be close together. Instead of commuting five days a week to get from the place we live to the place we work, we can commute one or two days a week to get from where we work and live to the central city where we may wish to go on cultural or shopping errands.

The challenge of the future is to develop new political jurisdictions that correspond to social and economic realities, and new forms of local taxation that meet the conditions of an age where wealth is held less in land and more in other forms.

The people today have a Twentieth Century vision of the good life for themselves and their children that cannot be fulfilled in the Nineteenth Century city—and that includes Washington. That vision cannot be denied. It leads inescapably to the looser, greener, sunnier city, with jobs closer to homes, that I have indicated lies directly ahead of us. To refuse that vision is to turn one's back on the future. That attitude city planning cannot countenance, nor can the nation's capital afford.

Mayor Appoints Students On Comic Book Committee

RICHMOND, Calif., has appointed a citizens' committee to recommend the restriction of comic books and other entertainment media which are considered objectionable for the youth of the Richmond area.

Following the council appointment of responsible and interested adults to the committee, Mayor Robert Miller received a call from the Social Study class at the Richmond Union High School. The students requested that two outstanding student leaders be added to the survey committee.

Mayor Miller immediately complied and commented, "I wonder why no one has ever thought of doing this before."

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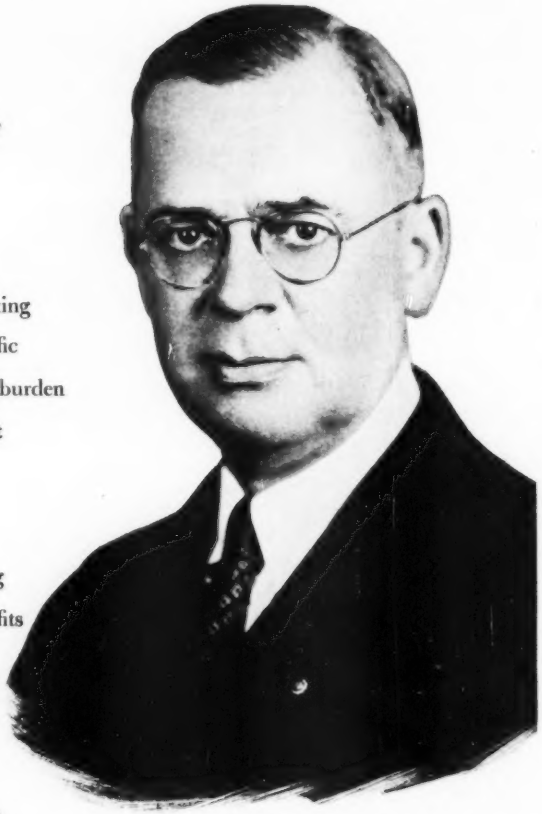

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Legal Notes and Decisions

Prepared by NATIONAL INSTITUTE OF MUNICIPAL LAW OFFICERS
Charles S. Rhyne, General Counsel

Assessments—Injunction Granted to Prevent Sales of Property

Where taxpayer sought to enjoin sale of property to satisfy special assessment liens which had been extinguished, held, in granting injunction, that property owner could seek injunctive relief rather than pay assessment under protest and sue to recover under statute. *Baccus v. Pankratz*, 194 P. (2d) 890 (Okla., June 15, 1948).

Assessments—Statutory Requirements of Notice

In action against city to review action of city council confirming an assessment roll levied against lots owned by plaintiffs for portion of construction costs of concrete sidewalk, retaining wall, and guard rail, held that property was assessed of cost greatly in excess of assessment value of abutting property, city had not complied with statutory requirements of notice, and therefore city council was without authority to approve such assessments. *Rosenthal v. City of Tacoma*, 195 P. (2) 102 Wash., June 24, 1948).

Bonds—Apportionment of Assets and Proceeds

In action by borough against township to enjoin expenditure of proceeds from sale of township bonds and for adjustment of indebtedness and apportionment of assets between township and borough, held that proceeds of bond issue must be disposed of under authority of township for purpose authorized by electors, and borough was not entitled to take portion of proceeds of bonds appropriated for specific purpose nor regulate their expenditure. *Borough of Pleasant Hill v. Jefferson Township*, 59 A. (2d) 697 (Pa., May 24, 1948). *Reh. den.* July 6, 1948.

Bonds — Validation of by Court as Forever Closing Question of Validity

Where court, 20 years previously, validated town bonds, held that city successor to town could not now question validity of bonds on ground they were signed by improper city officers. *Wright v. City of Anna Maria*, 34 So. (2d) 737 (Fla., Apr. 2, 1948). *Reh. den.* Apr. 28, 1949.

Charter Elections—City Officials Not Obliged to Submit New Charter

In action by city and county for declaratory judgment to determine whether City of Denver was obliged to call special election for charter convention to draft and submit new charter, where first election had affirmed and second election had rejected convention's proposed charter, held that city officials were under no further duty to hold successive charter elections until final approval of new charter under constitution providing for amendment of old or adoption of new charter granting home rule to city. *Mahood v. City and County of Denver*, 195 P. (2d) 379 (Colo., June 21, 1948).

City Councilmen — Personal Liability For Injuries Caused by Improper Maintenance of City Jail

In action for damages for injuries received through alleged improper maintenance of jail resulting in freezing of prisoner's feet, held that City Councilmen of City of Reno were not personally liable for such injuries as immunity of city extended to Council. *Gurle v. Brown*, 193 Pac. (2d) 693 (Nev., May 21, 1948).

City Employees—Statutory Requirements on Appeals from Order of Commission Reducing Ranks

Where joint and individual appeals were made from order of safety director in reducing ranks of fire division of City of Columbus, held that joint appeal would be dismissed because employees failed to post bond as required by statute, however, cause was remanded on individual appeals for lower court to fix time, not exceeding 30 days, for preparation and settlement of bills of exceptions on questions of law only. *In re Sidell et al.*, 80 N. E. (2d) 203 (Ohio App., Jan. 27, 1948).

Contracts—Sub-Contractors Bound to Furnish Material Where Old Contract Is Altered

Where City of Sunnyvale and contractors terminated old contract and entered into supplemental contract prior to completion of work whereby contractors were still found under old contract, held that there was no "completion of contract" so as to require filing of notice of claim with city clerk within 30 days by subcontractors. *United States Pipe & Foundry Co. et al., v. Goerig et al.*, 195 P. (2d) 91 (Wash., June 24, 1948).

Elections—Oath of Office—Statutory Period Begins After Results Declared by Town Council

Where incumbents refused to relinquish offices of mayor, recorder, and council member by claim that newly elected officers had failed to take oath of office within statutory period, held that newly elected officers had taken oath within 20 days after returns of election were canvassed and result declared by town council, and by statute officers were entitled to offices. *Daugherty et al. v. Town of Mabscott et al.*, 49 S. E. (2d) 342 (W. Va., June 8, 1948).

Eminent Domain—Federal Law Governs Compensation Where U S. Condemns City Streets

In proceedings by the United States against city to condemn municipal streets, bridges, and other facilities, held that federal law governs as to true measure of compensation, cost being based on cost of necessary substitutes, and when no substitutes are necessary, no compensation can be made. *United States v. City of New York*, 168 F. (2d) 387 (U. S. C. C. A. 2d, May 19, 1948).

Firemen—Award for Death of Volunteer Half-Hour After Duty

Where death of volunteer fireman, due to coronary thrombosis, occurred within half hour after he had finished driving fire truck to and from fire, held that death occurred while in performance of duties and widow was entitled to award. *Jacobs v. Village of Mamaroneck*, 79 N. Y. S. (2d) 793 (N. Y. App. Div., June 21, 1948).

Hospitals—Authority of City to Lease Without Authorization of Voters

Where city voters authorized bond issue to provide funds for purchase and equipment of municipal hospital and city attempted to lease hospital for term of 99 years, held that hospital could not be leased unless authorized by majority of qualified voters at election held for that purpose. *Lewis v. City of Seminole*, 195 P. (2d) 267 (Okla., June 22, 1948).

Lotteries—Contest Where Best Statement Selected on Merits Is Not "Chance" So As To Be Lottery

In action by bottling company against city to enjoin interference with certain advertising contests which city alleged were lotteries, held that selections of best statement of why soft drink "hits the spot" according to standards of aptness, originality, and interest announced by contest rules is not result of "chance" as required by statute to render contest lottery. *Munges v. City of Birmingham*, 36 So. (2d) 93 (Ala., June 10, 1948). *Reh. den.* June 30, 1948.

Noise—Enforcement of Ordinance Where Owner Given Permit Prior To Passage of Ordinance

In action by realty company to restrain enforcement of city ordinance prohibiting certain noises within 50 feet of any hotel or apartment during the winter season each year, held that since city had granted company permit to build hotel within 12-month period, that subsequent ordinance restraining such construction was arbitrary and discriminatory and injunction was properly granted by lower court. *City of Miami Beach v. Benhow Realty, Inc.*, 168 F. (2d) 378 (U. S. C. C. A. 5th, June 4, 1948).

Occupation Tax—Validity of Ordinance Imposing on Itinerant Merchants Engaged in Interstate Commerce

Where validity of city ordinance imposing occupation tax of $15 per day on itinerant vendors and requiring surety bond and health certificate be furnished was attacked by foreign corporation engaged in retail sale of footwear through salesman who displayed samples and took orders for future delivery, held that ordinance was invalid because it was an unlawful undertaking to regulate interstate commerce. *Frank Bros. Footwear, Inc. v. City of Omaha*, 33 N. W. (2d) 161 (Nebr., June 29, 1948).

Off-Street Parking—City Must Establish Necessity for Before Adoption of Ordinance

In action by property owner to enjoin city from acquisition of his property for establishment of municipal parking facilities, held that city council had failed to establish that parking facilities were necessary to relieve traffic congestion as required by statute, and ordinance was therefore invalid. *City of Jackson v. Craft*, 30 So. (2d) 149 (Miss., June 14, 1948).

Sewers—Connection with Required River Prohibited by Statute

In action by Attorney General to enjoin city from discharge sewage and other deleterious substances into river, held that statute prohibiting discharge of substances injurious to public health into river applied to cities as well as to general public. *Attorney General v. City of Woburn*, 79 N. E. (2d) 187 (Mass., Apr. 30, 1948).

Water—Surface Drainage—City Liability for Flooding Private Property

In action for damages caused by surface waters flooding plaintiff's property, held that if city undertakes to provide drainage system for such water, as result of which private property is flooded through failure to provide outlet for escape of water, city will be held liable. *Cattin v. City of Omaha*, 31 N. W. (2d) 300 (Nebr., Mar. 12, 1948).

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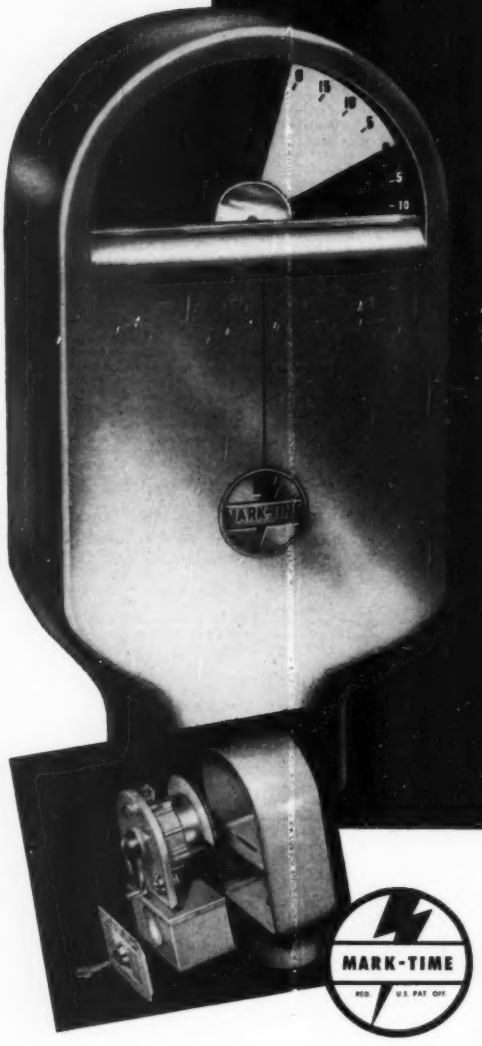

The Rhodemaster alone gives you these advantages. It is a proven, efficient, public servant, offered by a company that has specialized in parking meters since 1936.

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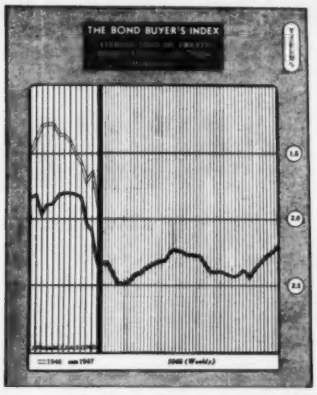
The Municipal Bond Market

By FREDERICK L. BIRD
Director of Municipal Research
Dun and Bradstreet, Inc.

IT WOULD seem well worth while, as state and municipal financing gets under way in 1949, to review the highlights of the record for 1948. The borrowing record for the year was extraordinary in a number of respects, but standing out most conspicuously was the fact that while the total of state and municipal bonds issued reached an all-time high, the municipal bond market closed the year in a stronger position than at the beginning of the year.

State and municipal bond sales in 1948 totaled $2,983,000,000, according to *The Bond Buyer*, more than $600,000,000 above the $2,354,000,000 in 1947, the previous high year, and virtually twice the pre-war peak of $1,498,000,000 in 1940.

The municipal bond market followed a fluctuating course throughout 1948 that was difficult to anticipate, but gained ground rapidly after the November election. The year opened with *The Bond Buyer's* yield index for 20-year bonds of 20 municipalities at 2.35%, but before the end of February it had reached 2.48%. Successful marketing of the large New York and Ohio bonus issues in March seemed to be the spring tonic that the market needed, and by June the yield index had dropped to 2.23%. Thereafter, however, the market became concerned with the rise in short-term interest rates and the possibility that the Federal Reserve System's support of long-term U. S. government bonds would weaken, and by November 4 the index had again risen to 2.45%. The election results dispelled conjecture that the Government bond-support level would be lowered, suggested higher taxes that would enhance the sheltering qualities of municipal bonds, and added less than had been anticipated to the volume of authorized bonds. The market responded with alacrity, and by the end of the year the index had dropped to 2.20%.



FROM "THE BOND BUYER," JANUARY 1, 1949

Trends in the municipal bond market during 1948 are shown above. Note the decline in interest rates after the November elections.

High Level Expected to Continue

State and municipal borrowing in 1949, while it seems unlikely to equal the total for 1948, has every prospect of continuing at a high level. Bond authorizations in November 1948 were about $877,000,000, somewhat below the $1,115,000,000 in November 1947; but considerable amounts of earlier authorizations remain unsold, and the state legislatures now in session and the local elections that will be held from time to time can be depended on to make substantial additions to the total.

The continuing deficiency in public-school facilities will necessitate heavy borrowing not only in 1949 but for some years, with the urgent total probably running into billions of dollars. The financing of sewage-disposal systems that cannot much longer be postponed will add up to a huge over-all requirement. These are only major examples of the public works and institutional deficiencies that swell the normal capital requirements for replacement and growth.

Borrowing for highways, relatively negligible for a number of years, will gain momentum in 1949 if authorized bonds are marketed as now anticipated and governors' recommendations to the legislatures meet with any substantial degree of approval. The financing of self-liquidating enterprises may run into hundreds of millions of dollars in 1949, though the timing of some of the larger items remains uncertain. With construction costs at twice the pre-war level, when state and municipal borrowing averaged nearly $1,000,000,000 a year, the continuance of capital borrowing in excess of $2,000,000,000 a year seems a reasonable expectation for some time to come. Additionally, authorized but unsold veterans' bonus bonds exceed $500,000,000.

The upward trend of municipal bond prices has continued into 1949, reflected conversely in the future decline of average interest cost. *The Bond Buyer* index was down to 2.16% on January 13, the lowest since December 1947. Municipal bond underwriters are debating, as this is written in mid-January, whether prices will move still higher or whether, possibly, they are already too high. Government bond prices have shown a strong upward trend, obviating the need, at least for the present, of continuing price support. This has been an important factor in the upward movement of municipal bonds; but the latter have advanced more sharply, undoubtedly because of that additional incentive, the prospect of higher income taxes. It is possible that this threatened tax increase may have been over-discounted in the rise in bond prices, particularly since there is no assurance that Congress will raise taxes as much as the President has requested.

It may be suggested, without hazarding any guesses about the trend of the municipal bond market, that progress of the conflict between inflationary and deflationary forces is likely to have some influence on the market in general over the coming months. Since it cannot be asserted conclusively that inflation is over (the possibility of armament inflation, for example, is still present), and since, even if inflation is over, the degree of inflation to be forthcoming is uncertain, there is little point in engaging in any long-range conjecture about municipal bonds. It would seem, however, that irrespective of inflation or mild or moderate deflation, continued support for government bonds and the improbability of reductions in income taxes will give a considerable degree of stability to the prices of high-grade municipal bonds. Lesser-grade municipals are more vulnerable, and any business recession of sufficient magnitude to aggravate the already difficult budget problems of municipalities would have an unsettling effect on the market for municipal bonds in the less secure classifications.

Recent City Manager Appointments

ROBERT O. BAILEY received the appointment at Stigler, Okla., succeeding E. ALLEN WEBSTER.

JACK BROAD, former municipal airport manager and purchasing agent, is the new manager of Brownwood, Texas.

ARNOLD V. FINCH, City Engineer, has succeeded GEORGE N. SCHOONMAKER as manager of Toledo, Ohio.

OSCAR L. FLECKNER withdrew his resignation at Springfield, Ohio.

GENE GATLIN became the first manager of Gilmer Texas.

RADFORD B. GIBSON became the first manager of Jasper, Texas.

ROBERT HANSON succeeded WILLIAM G. STOVER at Monmouth, Maine.

J. T. HARRIS succeeded JOHN W. LEE at Atoka, Okla.

HAROLD M. KINDER, Chief of Police, received the appointment to succeed GEORGE T. GUNDRY, at Flint, Mich.

RALPH D. KLEBES, formerly City Manager of Elmira, N. Y., received the appointment to succeed ROBERT J. COOPER at New Rochelle, N. Y.

A. PAGE LOCKARD is the first manager for Salem, W. Va.

E. F. LEE became the first manager of Lake Jackson, Texas.

JOHN W. PERRYMAN, formerly manager of Brownwood, Texas, became the first manager of Paris, Texas.

DAVID D. ROWLANDS, Assistant Planning Director of Wichita, Kans., received the appointment at Mt. Lebanon Township, Pa., to succeed LOWELL W. MONROE.

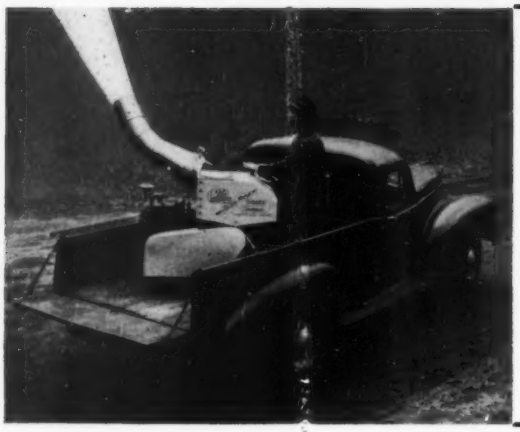
BILL N. TAYLOR, city manager of Longview, Texas, 1928 to 1940; Port Arthur, Texas, 1940 to 1945; McAllen, Texas, 1945 to 1946; Beaumont, Texas, 1946 to 1947; Baytown, Texas, 1947 to 1948, was appointed manager at Tyler, Texas, to succeed J. G. ROLLINS.

MARK C. THOMAS, Director of Finance, received the appointment at Hamilton, Ohio.

RALPH L. YANISH became the first manager for Quakertown, Pa.

CLARENCE E. RIDLEY
Director
International City Managers' Association

Another Mist Spraying FIRST by "LAWRENCE"



The L-40 AERO-MIST SPRAYER

COMPACT 700-LB. UNIT HANDLES COMPLETE MIST SPRAYING PROGRAMS IN SMALL MUNICIPALITIES

In addition to its famous L-80 heavy-duty mist sprayer (see box at right for latest improvements on this model), "LAWRENCE" now offers in a smaller sprayer, ALL of the exclusive and scientific features, which have made "LAWRENCE" *the name to remember in mist sprayers.*

Recommended for spraying programs for small municipalities, where the program is not large enough for the L-80 heavy-duty mist sprayer, the L-40 LAWRENCE AERO-MIST SPRAYER will *economically, efficiently* and *speedily* assist TREE, PARK and HEALTH departments in the control of leaf-eating insects—fungus diseases—and the protection of public health through the control of flies and mosquitos.

Hard-to-get-at spraying areas are a thing of the past as the L-40 can be operated from the back of an easily maneuvered light truck or trailer. Note in the above photo how the operator can swing the L-40 in a complete circle thus enabling the directional air nozzle to be "aimed" in any direction. Blind spots are automatically eliminated.

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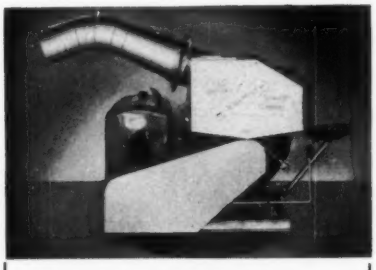

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- NEW larger capacity pump to work in conjunction with tank for better agitation. Pump handles all types of spray materials.
- NEW quick shut off valve for instant spray control.
- NEW steel base reduces weight of sprayer 200 pounds.
- NEW improved braking system.

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Conventions—When and Where

Conventions listed this month for the first time are indicated by an asterisk (*)

***Feb. 7-9—Washington, D. C.**
AMERICAN ROAD BUILDERS ASSOCIATION. Annual Convention (Hotels Mayflower, Statler, Willard). Engr. Dir., Charles M. Upham, 1319 F St. NW., Washington 14, D. C.

Feb. 14-15—Detroit, Mich.
ASSOCIATION OF ASPHALT PAVING TECHNOLOGISTS. Annual Meeting (Hotel Statler). Exec. Sec., Ward K. Parr, 1224 E. Eng. Bldg, Ann Arbor, Mich.

Feb. 16-18—New York, N. Y.
ASSOCIATION OF TOWNS. Annual Meeting (Hotel Commodore). Exec. Sec., Edward F. N. Uthe, 91 State St., Albany, N. Y.

Feb. 17—Newark, N. J.
AMERICAN WATER WORKS ASSOCIATION—New Jersey Section. Luncheon Meeting (Essex House). Exec. Sec., C. B. Tygert, P. O. Box 178, Newark 1, N. J.

Feb. 28-March 3—New York, N. Y.
THE ASSOCIATED GENERAL CONTRACTORS OF AMERICA. Annual Convention (Hotel Waldorf-Astoria). Mng. Dir., H. E. Foreman, 1227 Munsey Bldg., Washington 4, D. C.

March 1-3—Boston, Mass.
ASSOCIATION OF HIGHWAY OFFICIALS OF THE NORTH ATLANTIC STATES. Annual Meeting (Hotel Statler). Sec.-Treas., A. Lee Grover, State House Annex, Trenton, N. J.

***March 4-6—Atlantic City, N. J.**
AMERICAN INSTITUTE OF PLANNERS. Annual Meeting (Hotel Chalfonte-Haddon Hall). Exec. Sec., Draveaux Bender, Room 7-335, 77 Massachusetts Ave., Cambridge 39, Mass.

March 10-12—Richmond, Va.
AMERICAN CONCRETE PIPE ASSOCIATION. Annual Convention (Hotel John Marshall). Mng. Dir., H. F. Peckworth, 228 N. LaSalle Street, Chicago, Ill.

March 11-13—Washington, D. C
AMERICAN SOCIETY FOR PUBLIC ADMINISTRATION. Annual Convention (Hotel Statler). Sec.-Treas., Laverne Burchfield, 1313 E. 60th St., Chicago, Ill.

***March 14-15—Ann Arbor, Mich.**
INSERVICE TRAINING COURSE IN SEWAGE AND INDUSTRIAL WASTE DISPOSAL. (University of Michigan, School of Public Health.) H. E. Miller, School of Public Health, University of Michigan, Ann Arbor, Mich.

March 15-18—Houston, Texas
THE AMERICAN INSTITUTE OF ARCHITECTS. Annual Convention (Hotel Rice). Exec. Dir., Edward C. Kemper, 1741 New York Ave, NW., Washington 6, D. C.

March 21-23—Washington, D. C.
UNITED STATES CONFERENCE OF MAYORS. Annual Conference. Exec. Dir., Paul V. Betters, 730 Jackson Place, NW., Washington 6, D. C.

***March 22-25—Atlantic City, N. J.**
NEW JERSEY MOSQUITO EXTERMINATION ASSOCIATION. Annual Meeting (Hotel Chalfonte-Haddon Hall). Sec., Thomas D. Mulhearn, New Brunswick, N. J.

March 23-25—Trenton, N. J
NEW JERSEY SEWAGE WORKS ASSOCIATION. Annual Meeting (Hotel Stacy-Trent). Sec.-Treas., Michael S. Kachorsky, 345 No. 8th Ave., Manville, N. J.

March 28-30—Oklahoma City, Okla.
AMERICAN PLANNING AND CIVIC ASSOCIATION. Annual Conference (Hotel Skirvin). Exec. Sec., Miss Harlean James, 901 Union Trust Bldg., Washington, D. C.

Mar. 31-April 1—Natural Bridge, Va.
VIRGINIA INDUSTRIAL WASTES AND SEWAGE WORKS ASSOCIATION. Annual Meeting (Hotel Natural Bridge). Sec.-Treas., A. H. Paessler, 815 E. Franklin St., Richmond 19, Va.

April 4-6—Washington, D. C.
AMERICAN SOCIETY OF LANDSCAPE ARCHITECTS. Annual Meeting (Hotel Shoreham). Corresponding Sec., Bradford Williams, 9 Park St., Boston 8, Mass.

***April 7—Great Falls, Mont.**
MONTANA SEWAGE WORKS ASSOCIATION. Annual Meeting (Civic Center). Sec., H. B. Foote, State Board of Health, Helena, Mont.

April 8-9—Great Falls, Mont.
AMERICAN WATER WORKS ASSOCIATION—Montana Section. Annual Meeting (Civic Center). Sec., C. W. Brinck, State Board of Health, Helena, Mont.

***April 11-13—Little Rock, Ark.**
ARKANSAS WATER AND SEWAGE CONFERENCE. Annual Conference (Hotel Marion). Sec., Harrison Hale, 118 Chemistry Bldg., Fayetteville, Ark.

April 20-22—Indianapolis, Ind.
AMERICAN WATER WORKS ASSOCIATION—Indiana Section. Annual Meeting (Hotel Lincoln). Sec.-Treas., C. H. Bechert, Room 217, Underwriters' Bldg., Indianapolis, Ind.

April 21-22—Hutchinson, Kans.
AMERICAN WATER WORKS ASSOCIATION—Kansas Section, and FEDERATION OF SEWAGE WORKS ASSOCIATIONS, Kansas Section. Annual Meeting (Hotel Bisonte). Sec., Sewage Works Assn., Dwight F. Metzler, Room 2, Marvis Hall, Lawrence, Kans.

April 25-27—Quebec, Canada
AMERICAN WATER WORKS ASSOCIATION—Canadian Section. Annual Convention (Chateau Frontenac). Sec.-Treas., A. E. Berry, Parliament Bldgs., Toronto, Ontario, Canada.

May 2-5—Washington, D. C.
CHAMBER OF COMMERCE OF THE UNITED STATES. Annual Meeting (Chamber Building). Exec. Vice-Pres., Ralph Bradford, 1615 H St. NW., Washington, D. C.

May 9-11—Detroit, Mich.
ASSOCIATION OF STATE PLANNING AND DEVELOPMENT AGENCIES. Annual Meeting (Hotel Book Cadillac). Exec. Dir., Walter H. Blucher, 1313 E. 60th St., Chicago 37, Ill.

May 10-12—Los Angeles, Calif.
AMERICAN PUBLIC POWER ASSOCIATION. Annual Convention (Hotel Ambassador). Gen. Mgr., Carlton L. Nau, 1757 K St., NW., Washington 6, D. C.

May 12-14—Bellingham, Wash.
AMERICAN WATER WORKS ASSOCIATION—Pacific Northwest Section. Annual Meeting (Hotel Bellingham). Exec. Sec., Fred Merryfield, Prof. San. Eng., Oregon State College, Corvallis, Ore.

May 16-19—San Francisco, Calif.
NATIONAL FIRE PROTECTION ASSOCIATION. Annual Meeting (Hotel Fairmont). Gen. Mgr., Percy Bugbee, 60 Batterymarch St., Boston, Mass.

***May 17-18—Washington, D. C.**
NATIONAL PUBLIC HOUSING CONFERENCE. Annual Meeting (Hotel Statler). Exec. Vice-Pres., Lee F. Johnson, 1015 Fifteenth St., NW., Washington 5, D. C.

May 23-26—Detroit, Mich.
MUNICIPAL FINANCE OFFICERS ASSOCIATION OF THE UNITED STATES AND CANADA. Annual Meeting (Hotel Statler). Exec. Dir., Miner B. Phillipps, 1313 E. 60th St., Chicago 37, Ill.

May 25-27—Chicago, Ill.
NATIONAL INSTITUTE OF CITY AND TOWN CLERKS. Annual Conference (Hotel Sherman). Exec. Dir., Philip P. Costello, City Hall, Perth Amboy, N. J.

May 30-June 3—Chicago, Ill.
AMERICAN WATER WORKS ASSOCIATION—National Convention. Annual Convention (Hotel Stevens). Exec. Sec., Harry E. Jordan, 500 Fifth Ave., New York, N. Y.

June 1-3—Washington, D. C.
PRESIDENT'S HIGHWAY SAFETY CONFERENCE (Departmental Auditorium, Federal Works Bldg.). Gen. Chr., Major Gen. Philip B. Fleming, Federal Works Administrator, Washington 25, D. C.

June 12-17—Cleveland, Ohio
ANNUAL CONFERENCE OF SOCIAL WORK. Annual Meeting (Cleveland Auditorium). Exec. Sec., Joe R. Hoffer, 82 North High St., Columbus, Ohio.

***June 23—Wanaque, N. J.**
AMERICAN WATER WORKS ASSOCIATION—New Jersey Section. Outing and Inspection. Exec. Sec., C. B. Tygert, P. O. Box 178, Newark 1, N. J.

***July 17-20—Oakland, Calif.**
NATIONAL ASSOCIATION OF COUNTY OFFICIALS. Annual Convention. Exec. Dir., Keith L. Seegmiller, 1616 I St. NW., Washington 6, D. C.

***Sept. 19-22—Boston, Mass.**
NATIONAL TAX ASSOCIATION. Annual Conference (Hotel Statler). Sec., Ronald B. Welch, P. O. Box 1799, Sacramento 8, Calif.

Sept. 13-16—Dixcille Notch, N. H.
NEW ENGLAND WATER WORKS ASSOCIATION. Annual Meeting (Hotel Balsams). Sec. Richard Ellis, Associated Factory Mutual Fire Insurance Companies, 184 High St., Boston, Mass.

Power and Light Plants In U. S. Municipalities Of Over 2,500

ACCORDING to a recent compilation by the Federal Power Commission, there are 872 municipally owned light and power installations in cities of 2,500 or more population, broken down by states as follows:

Alabama	25	Nebraska	38
Arizona	2	New Hampshire	1
Arkansas	13	New Jersey	8
California	26	New Mexico	6
Colorado	9	New York	25
Connecticut	8	North Carolina	31
Delaware	5	North Dakota	2
Florida	20	Ohio	49
Georgia	34	Oklahoma	26
Idaho	4	Oregon	3
Illinois	31	Pennsylvania	23
Indiana	30	Rhode Island	1
Iowa	27	South Carolina	17
Kansas	29	South Dakota	6
Kentucky	15	Tennessee	59
Louisiana	20	Texas	46
Maine	3	Utah	14
Maryland	3	Vermont	1
Massachusetts	25	Virginia	11
Michigan	30	Washington	15
Minnesota	41	West Virginia	1
Mississippi	21	Wisconsin	28
Missouri	37	Wyoming	1
Montana	2		

Money-saving Ground Keeper

Managers of airports large and small swear by "Caterpillar" Diesel Motor Graders for dependable, economical, all-purpose use all year around. Equipped with 12-foot blade and heavy-duty scarifier, they groom the ground for happy landings, as handy as they are efficient at building, regrading, maintaining or rebuilding roads and runways.

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With a rig that managers and drivers agree on, you can't go wrong putting "Caterpillar" equipment to work for you. It's a money-saver—built completely by one manufacturer and backed by one capable, well-equipped dealer.

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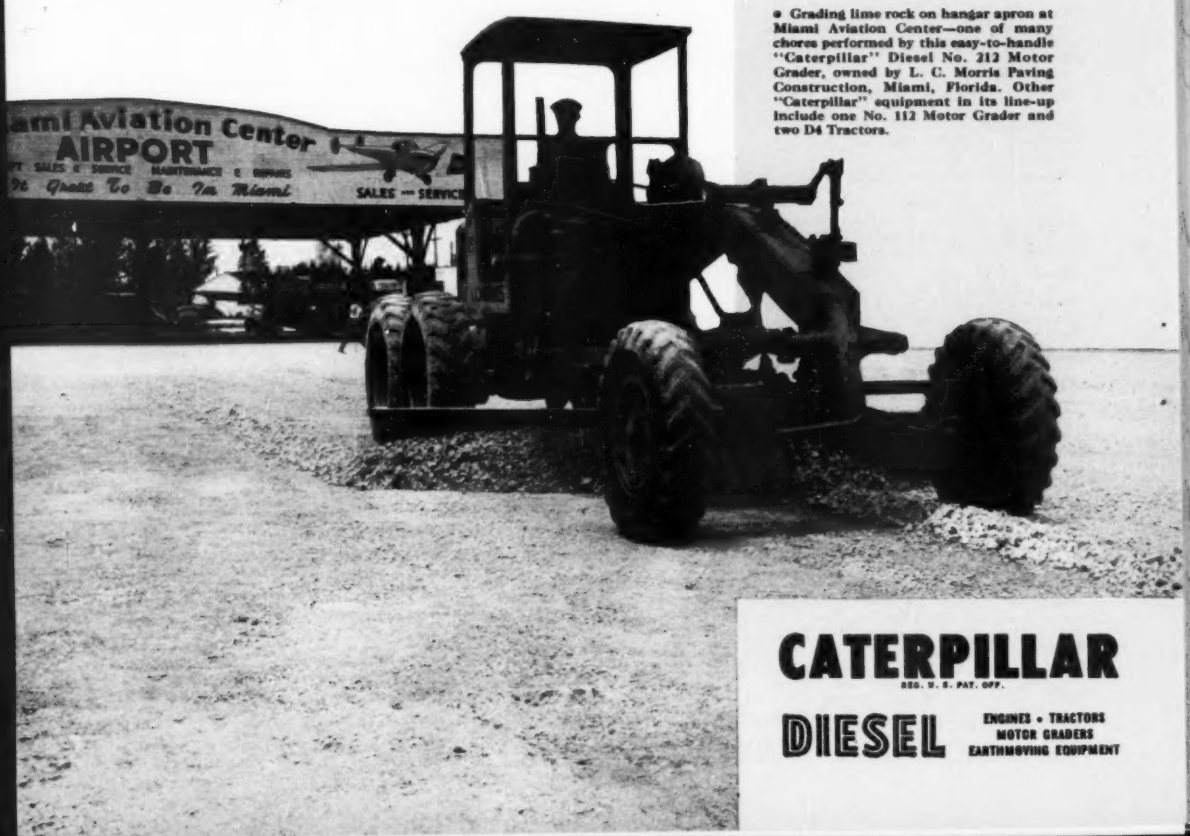

• Grading lime rock on hangar apron at Miami Aviation Center—one of many chores performed by this easy-to-handle "Caterpillar" Diesel No. 212 Motor Grader, owned by L. C. Morris Paving Construction, Miami, Florida. Other "Caterpillar" equipment in its line-up include one No. 112 Motor Grader and two D4 Tractors.

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Municipal Purchasing News

NEW officers of the NATIONAL INSTITUTE OF GOVERNMENTAL PURCHASING are: President, Joseph W. Nicholson, City Purchasing Agent of Milwaukee, Wis.; Vice-President, John Splain, Commissioner of Purchase of the City of New York; Treasurer, Michael M. Donohue, Purchasing Agent of Allegheny County, Pittsburgh, Pa.

The Institute will study the advisability of eliminating the necessity of advertising for bids in the purchase by muncipalities of materials, supplies, and equipment where the estimated cost is less than $5,000, and also the advisability of eliminating bid and performance bonds under varying conditions. The Institute staff was requested to submit to the next annual meeting a proposed statutory draft dealing with this problem for consideration by the members of the Institute.

CLEVELAND, OHIO, was selected as the 1949 Conference and Exhibit city.

LESLIE P. BROBERG, City Purchasing Agent, 201 City and County Building, Salt Lake City, Utah, has been directed by the City Commission to install a perpetual inventory on all movable city property. Mr. Broberg wishes to obtain information on practices in vogue in other governmental units.

Public buyers continue to send to Institute headquarters copies of specifications they have developed. B. L. GILL, City Purchasing Agent of Madison, Wis., has sent specifications on refuse and sanitation bodies and trucks. R. T. ANDERSON, Director of Finance and Purchasing Agent of Toledo, Ohio, has sent in the following specifications: Flusher tank and pump, trailer-mounted; truck chassis; closed sanitary bodies; cinder spreader; motor grader; force-feed conveyor loader; truck chassis for Eductor; tandem roller, and tractor motors. JOHN G. KREIG, City Purchasing Agent of Cincinnati, has sent specifications for 1,000-gallon pumping engines, a 185-foot aerial ladder, a trailer-mounted compressor and a skid-mounted compressor. JOHN W. HUFFMAN, City Purchasing Agent of Richmond, Va., has developed specifications for police and fire uniforms. JOSEPH W. NICHOLSON, City Purchasing Agent of Milwaukee, has placed with the Institute specifications for storage batteries, a police ambulance, green white-lead bridge paint and yellow street-marking paint. ALVIN J. HOLM, City Purchasing Agent of Los Angeles, sends his new specifications for furnishing and installing parking meters.

ALBERT H. HALL
Executive Director
National Institute of Governmental Purchasing, Inc.
Washington, D. C.

COOL, FRESH AIR WHILE THEY FIGHT!

-that's how Scott Air-Pak reduces fire losses!

Cool, confidence-inspiring, *safe* air for the fireman—that's what Scott *Air-Pak* provides. The fireman will be safer; he'll fight fires more efficiently—get them under control *quicker*, unhampered by choking fumes or smoke.

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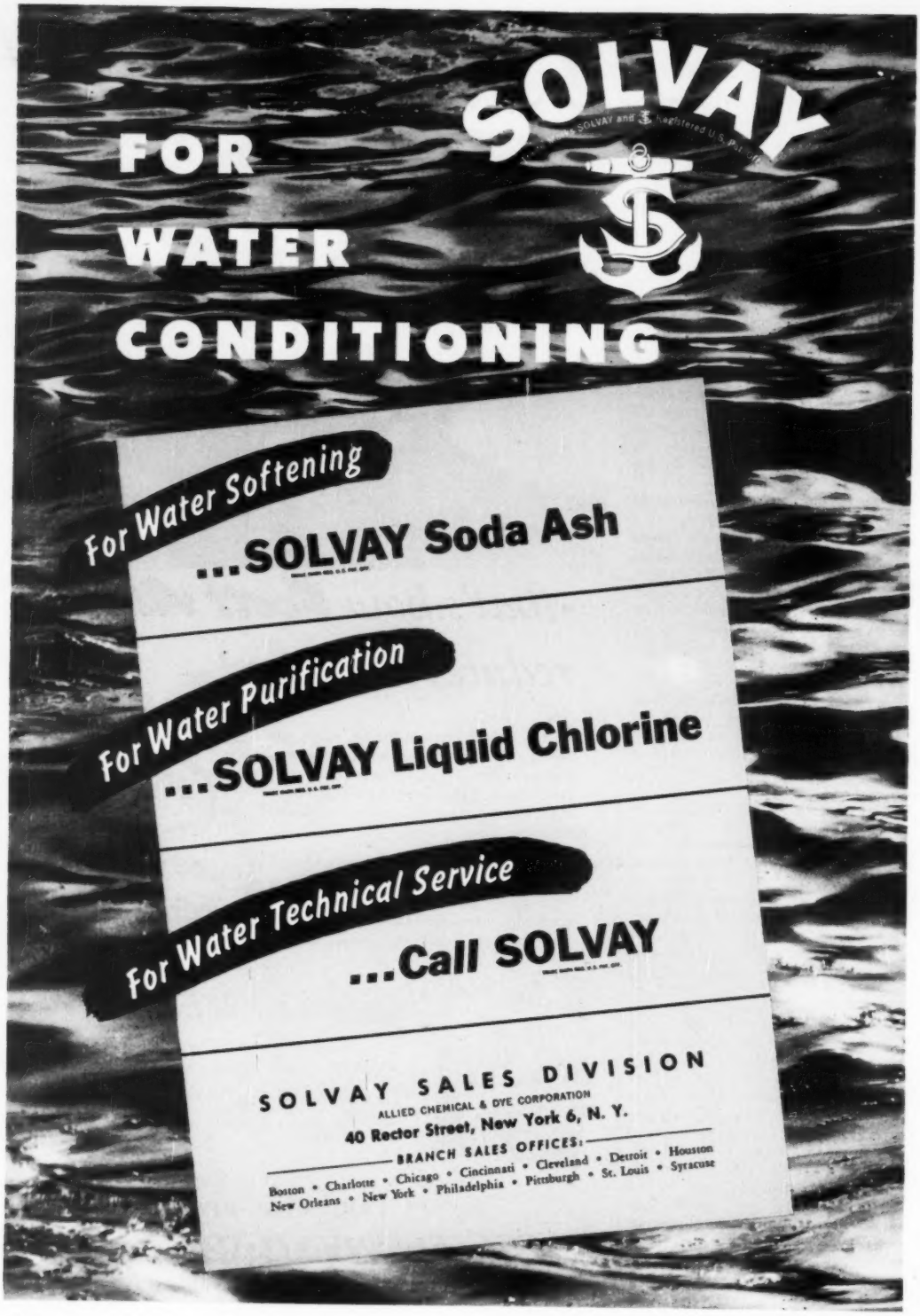
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Municipal and Civic Publications

Bookmobile Guide

CHOOSING YOUR BOOKMOBILE—*"Bulletin," American Library Association, 50 E. Huron St., Chicago 11, Ill. Nov.* 1948. *57 pp.* $1.

This supplement on bookmobiles presents, in compact and usable form, practical information and help in the selection of vehicles and equipment for mobile library service. The articles discuss the costs, advantages, and disadvantages of trucks, trailers, and buses. There are sections on "What To Do About Shelving and Equipment," and "Planning the Exterior and Interior Finish." Appendices include information on bookmobiles built since 1940; specifications of bookmobiles; staffs and areas served by bookmobiles; names and addresses of manufacturers, and a useful bibliography.

Housing Design from Maintenance Viewpoint

MAINTENANCE MEN LOOK AT HOUSING DESIGN—*Maintenance Committee, National Association of Housing Officials, 1313 E. 60th St., Chicago 37, Ill. Sept.* 1948. *28 pp.* $1.

Recommendations for design and construction of low-rent housing projects are contained in this report, specifically directed to planners of large-scale rental projects who are trying to achieve the lowest initial and operating costs consistent with high quality and long life of the buildings.

The study is a revised edition of an earlier report by maintenance superintendents. It begins with general recommendations for housing design and then goes into details on ten areas of construction: site selection; site development; structures; central and group heating; tenant-operated heating; plumbing and sanitation; electrical systems; interior painting; centralized maintenance facilities, and dwelling equipment.

Intergroup Relations Directory

DIRECTORY OF AGENCIES IN INTERGROUP RELATIONS, 1948-1949—*American Council on Race Relations, 4901 Ellis Ave., Chicago 15, Ill.* 205 *pp.* $1.50.

This valuable directory identifies national, regional, state, and local organizations, public and private, which are concerned with the improvement of racial, religious, ethnic, or cultural relations in the United States. The several types of agencies are described in terms of their differences in auspices, structure, and function, and their relationships are indicated.

Data are given on membership, finances, personnel, departments, groups served, problem areas, methods, purposes, activities, and publications of 1134 different agencies. Of this total, 48 are local public agencies, such as mayors' committees or commissions on human relations, civic unity, against discrimination, etc., and 662 are local, private agencies. The directory entries are well-classified and indexed.

Organization Principles

THE PRINCIPLES OF ORGANIZATION—*By James D. Mooney. Harper and Brothers, New York, N. Y. Revised Edition.* 1947. *223 pp.* $3.

This book is full of meaty ideas for those in charge of an organization or interested in organization problems. It analyzes the structural and operating weakness of former organizations in their failure to understand and observe the universal laws of organization. It identifies and illustrates the working of sound principles in the various forms of organized activity which has characterized man's development from the primitive form to the present complex structures in the church and the military, political and industrial organizations of today.

In the foreword, the author declares, "Perhaps a better understanding of the principles of organization will enable us to have in America a strong, effective government and at the same time maintain our ideas of constitutional democracy and liberty—in other words a happy balance between order and personal freedom."

Sewage Treatment

SEWAGE COLLECTION AND TREATMENT WORKS IN THE STATE OF WASHINGTON—*By Emil C. Jensen and Joshua H. Vogel. Bureau of Governmental Research and Services, University of Washington, Seattle 5, Wash., in cooperation with the Association of Washington Cities and the Washington State Department of Health. Report No. 86. June* 1948. *Illus. 105 pp. and a 22-p. appendix.* $2.

An exceptionally well-prepared report dealing with sewage treatment, written in an easily understood style. The report covers the various phases of sewage treatment, has many illustrations, deals with sewerage financing, and lists many of the city sewer ordinances. The appendix gives sewerage data for various cities in Washington, lists the pollution control law under which the state governs this phase of sanitation, and gives other regulations bearing on this subject. Mr. Jensen, and Mr. Vogel are respectively Chief, Division of Public Health Engineering, Washington State Department of Health, and Civil Engineer, Planning and Public Works Consultant, Bureau of Governmental Research and Services.

Survey of Pumping of Illinois Concrete Pavements

RESEARCH REPORT NO. 1 D, 1948 SUPPLEMENT—*Highway Research Board, Committee on Maintenance of Joints in Concrete Pavements as Related to the Pumping Action of the Slabs. 2101 Constitution Ave., Washington 25, D. C. 48 pp.*

Including a survey of the pumping of concrete pavements in Illinois, the principal conclusions of this report show that: the texture of the subgrade oil will determine whether or not it is susceptible to pumping; granular subbases will prevent pumping; a minimum provision of expansion space will lessen the amount of pumping likely to take place; in pavement built without mesh reinforcement, contraction joints which retain an adequate seal are less likely to pump than cracks.

Curb-and-Gutter Standards

SUGGESTED STANDARDS FOR CURB AND GUTTER DESIGN—*Bureau of Municipal Research and Service, in cooperation with the League of Oregon Cities, Eugene, Ore. Oct.* 1948. *Mimeo. 4 pp.*

The report, prepared by a special committee appointed by the League of Oregon Cities, shows that there is actually little difference in present design standards for curbs and gutters, and that standardization could easily be accomplished. The report points out that standardization would result in some construction cost savings, as contractors doing work in different cities could use similar permanent forming materials, or some cities could use the same forms cooperatively with other cities.

Metropolitan Planning Development

COORDINATED PUBLIC PLANNING IN THE LOS ANGELES REGION—*By Judith Norvell Jamison. Bureau of Governmental Research, University of California, Los Angeles. June* 1948. *200 pp.* $1.

This report offers an analytical record of experience in the development of regional-planning policy in the Los Angeles metropolitan area. The purpose of the study is to furnish a coordinated handbook of basic administrative and bibliographical information of help to the region itself as well as to all students of public planning. The record should prove especially useful, as in the field of metropolitan regional planning Los Angeles presents the longest span of experience in official planning administration in the country.

Hospital Trends

HOSPITAL TRENDS AND DEVELOPMENTS—*Edited by A. C. Bachmeyer and Gerhard Hartman. The Commonwealth Fund, 41 E. 57th St., New York, N. Y.* 1948. *818 pp.* $5.50.

An outstanding compact volume consisting mainly of carefully evaluated articles selected from the periodical literature published in the hospital and allied fields during the years 1940-1946. Every aspect of hospital life and service is dealt with in the book. Though designed mainly for the hospital administrator, his assistants, department heads, board members and trustees, and students of hospital administration, the articles are all extremely readable and reflect the best in recent thought and opinion concerning hospital development.

The editors declare that no other public service agency has grown so rapidly or has had so tremendous a development as has the hospital during the last 50 years, and that it is now recognized as one of the leading social institutions of the community. Municipal officials concerned with hospital needs and projects should find the volume an excellent reference source. Of particular interest are such chapters as Current Trends, Rural Hospitals and Health Facilities, Foreign Hospital Development, Volunteers and Volunteer Service, and Regional Planning of Hospital Services and Facilities. Sections on Group Hospital and Health Insurance, Public Health, and Public Relations are also stimulating.

Community Action Principles

ORGANIZING FOR COMMUNITY ACTION—*By Clarence King. Harper and Brothers, 49 E. 33rd St., New York 16, N. Y.* 1948. *202 pp.* $3.

An effective distillation of some of the principles of individual participation and of group cooperation for accomplishment of social welfare objectives. The statements of principles are well documented with case material and with stories drawn from the author's diversified experience. Each case holds the reader's attention and drives home the author's points.

The cases are mostly concerned with problems of social workers in different situations and in different communities. The situations involve such diverse community needs and functions as dental clinics, community chests, recreation, mental hygiene, employment commissions, and citizens' councils of various kinds. The role of municipal officials in such efforts is often described. The sections on political action and community organization, and to what extent community organization principles apply at the national and international level, are especially interesting.

School Plant Trends

SCHOOL PLANT TRENDS—*Special Issue, "The School Executive," January* 1949. *Publ. at 470 Fourth Ave, New York 16, N. Y. 138 pp. 50 cents per copy.*

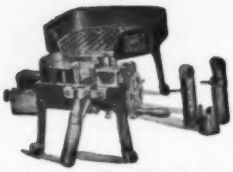
Many practical ideas for community leaders interested in school plant planning are contained in this special issue of *The School Executive*, devoted to trends in the school design and construction field. Considerable attention is given to the school in relation to its community environment and to community use of school facilities. The emphasis is on planning for flexibility of space within school buildings, and for possible expansion or conversion.

Municipal Policy Elements

THE ELEMENTS OF A NATIONAL MUNICIPAL POLICY AND OTHER RESOLUTIONS ADOPTED BY THE AMERICAN MUNICIPAL ASSOCIATION AT ITS 1948 CONFERENCE *in Washington, D. C., Dec. 13-15. Available from the A.M.A., 1313 E. 60th St., Chicago 37, Ill. Mimeo. 10 pp.*

The full texts of the policy statements and resolutions adopted at the recent AMA Washington conference are contained in this report.

FOR HANDLING COINS



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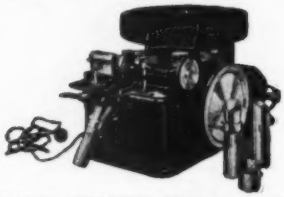

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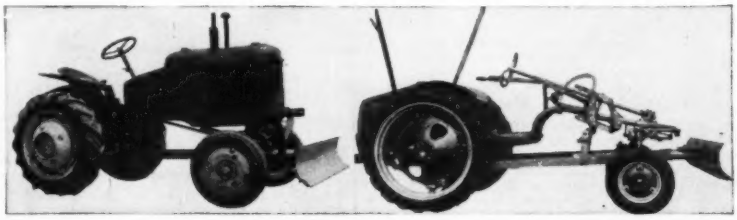

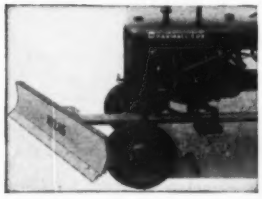

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Report on Microfilming and Photocopying

BETTER RECORDING AT LESS COST THROUGH PHOTOGRAPHY—*Berks County Branch, Pennsylvania Economy League, Inc., 524 Berks County Trust Bldg., Reading, Pa. Oct.* 1948. 38 *pp.* 50 *cents.*

This report contains recommendations for copying, recording and filing records in Berks County, Pa. The report should be of general interest and value, however, because of its clear description of two modern methods of preserving public records; one by photographing direct on sensitized paper—photocopying; and the other by photographing microscopically on a film—microfilming. The report recommends that all new permanent "current" records be photocopied and eventually microfilmed to insure their reproduction in event of destruction. It also recommends that all non-current records be microfilmed, as a means of saving space.

The 99% condensation or space-saving that would result is demonstrated vividly by a strip of microfilm pasted on the inside cover of the report, which reproduces some 15 pages dealing with microfilming.

Michigan Sewer Rental Practices

FINANCING SEWAGE DISPOSAL BY SEWER RENTALS IN MICHIGAN—*Michigan Municipal League, 205 S. State St., Ann Arbor, Mich. Oct.* 1948. *Mimeo.* 36 *pp.* $1.50.

This bulletin summarizes practices of Michigan's cities and villages in the use of sewer rentals, and restates principles involved in their usage. The report concludes that increased reliance can be anticipated on the "sewer rental" as a partial solution to the problem of securing additional revenues for efficient disposal facilities.

Parking Lot Operation

PARKING LOT OPERATION—*The Eno Foundation for Highway Traffic Control, Saugatuck, Conn.* 1948. 114 *pp.*

An excellent study of parking lots and their operation which should be of value in many municipalities that have embarked on ventures in this field. It is based on a study of 37 lots in 37 cities in 26 states. On physical features of parking lots, the report contains the interesting information that, depending upon the size of the lot, and its arrangement, areas required per car varied from 127 to 307 square feet. There is also considerable information on salaries, rental charges, and average expense and income per cars parked for lots of various types.

State Planning Developments

PROCEEDINGS, THIRD ANNUAL CONFERENCE OF THE ASSOCIATION OF STATE PLANNING AND DEVELOPMENT AGENCIES — *Association of State Planning and Development Agencies, 1313 E. 60th St., Chicago 37, Ill. May* 1948. *Mimeo.* 200 *pp.*

These proceedings testify to the vigorous growth and progress of the three-year-old Association of State Planning and Development Agencies. The Association is serviced by the staff of the American Society of Planning Officials and has done a great deal to strengthen and advance the functions and operations of state planning programs.

The papers and discussions presented in these proceedings give a comprehensive roundup of developments in the state planning field. The many committee reports contain excellent technical material on various aspects of state planning and development. Topics covered include travel and recreational development, regional and economic research, industrial development, topographical mapping, public works planning, and conservation of natural resources.

Library Youth Services

THE PUBLIC LIBRARY PLANS FOR THE TEEN AGE—*American Library Association, Chicago, Ill. Planning for Libraries No. 7.* 1948. 87 *pp.* $1.75.

A compact summary of new trends in the field of library service to young people, including descriptions of work already established in a variety of communities.

Fostering Planning in Public Schools

ANY AGE—ANY TALENT, CHILDREN CAN THINK CONSTRUCTIVELY ABOUT THEIR COMMUNITIES—*Tennessee State Planning Commission, 432 Sixth Ave. North, Nashville 3, Tenn.* 1948. 8 *pp.* 10 *cents.*

A cogent plea for further promotion by community planning agencies of educational activities in the public schools. The pamphlet makes it clear that both educators and planners have much to gain by shaping school curriculums toward an understanding of the community and its problems. It is ingeniously illustrated with drawings and quotations from the work of grade school students.

Elementary School Community Text

SAN FRANCISCO TODAY — *By the Elementary School Dept., San Francisco Social Studies Series. Book No. 1. San Francisco Unified School Dist., San Francisco, Calif.* 1948. 32 *pp.*

Designed to increase the interest of elementary school students in their community, San Francisco Today is written in a simple and stimulating way. Attractively illustrated, it uses a large type face which is easy to read. The booklet uses the device of a talking friendly sea gull to help give young students a perspective on the San Francisco region.

Canadian Planning Review

REVIEW, INSTITUTE OF PROFESSIONAL TOWN PLANNERS—*Pub. at 24 Bloor St. East, Toronto, Canada. Nov.* 1948. *Vol. 1, No. 3.* 6 *pp.*

Published by the Canadian Institute of Professional Town Planners, an association founded to promote the science and art of town and community planning, issues of this review are devoted to news and discussions of Canadian planning problems and progress. Roundups are given of various news developments with regard to Canadian planning, and the activities of professional planners. E. G. Faludi is secretary of the Institute.

Housing Statistics Monthly

HOUSING STATISTICS—*November* 1948. *Vol. 1, No. 1. Division of Group Services, Housing and Home Finance Agency, Washington, D. C.* 45 *pp.*

The purpose of this new monthly publication of the Housing and Home Finance Agency is to provide users of housing statistics with current information on housing production, construction costs, home financing and public housing, and to bring up to date the basic statistical charts and tables issued annually in the Housing Statistics Handbook. The Division of Group Services will make the publication available to citizens' housing groups, and a select list of other groups and individuals.

Neighborhood Unit Study

THE NEIGHBORHOOD—GRASS ROOTS OF AMERICAN DEMOCRACY—*By H. Daniel Carpenter. Ethical Frontier Pamphlet. New York Soc. for Ethical Culture, 2 West 64th St., New York 23, N. Y.* 1948. 27 *pp.* 15 *cents.*

A thoughtful statement of the need for careful study of social organization in neighborhood units, from which many planners and housers, concerned mainly with physical structures and facilities, can gain a great deal. The report discusses the work of the Chelsea Association for Planning and Action in Manhattan, which stimulates and promotes a variety of community improvements.

Chamber of Commerce Buildings

BUILDING OWNERSHIP BY CHAMBERS OF COMMERCE — *Commercial Organization Department, Chamber of Commerce of U. S., Washington 6, D. C.* 1948. *Illus.* 34 *pp.*

This report is designed to be of interest and value to chambers of commerce which are contemplating the erection or acquisition of a building for their own occupancy. It reveals the experiences of a number of organizations which own the buildings in which their offices are located, and includes photographs and data on financing and operating.

Stabilizing Housing Employment

HOUSING AND EMPLOYMENT—*International Labor Office, Washington Branch, 1825 Jefferson Pl., Washington 6, D. C.* 1948. 147 *pp.* 75 *cents.*

The report analyzes public housing programs from the viewpoint of stabilization of production and employment in the building industry. The ILO, which is a specialized agency of the United Nations, points out in the report that even where national policy results in public projects, private contractors will still be called upon to do the work. It views stablization of production and employment in the building industry as the main hope of ending restrictive labor practices and costly small-scale handicraft techniques.

If private enterprise can increase the efficiency of production methods, the survey states, "governments can confine themselves to over-all planning and to measures designed to stabilize total housing production. . . . Here is no proposition whereby governments would encroach on a traditional field of private enterprise. What is at issue is the supply of houses to a section of people whose needs private enterprise has never been able to meet."

The report briefly describes housing needs and government policies in the United Kingdom, Sweden, Australia, and the United States.

Businessmen's Conference on Urban Problems

BETTER CITIES . . . BETTER BUSINESS—*A Complete Report on the Businessmen's Conference on Urban Problems, Detroit, Mich., Sept.* 13-14, 1948. *Chamber of Commerce of the U. S., Washington, D. C.* 180 *pp.* $1.

This report on the second annual "Businessmen's Conference on Urban Problems" is notable for its full coverage of every aspect of the conference. The many intelligent questions and answers which follow the panel discussions should provide businessmen everywhere with a much deeper insight into the nature of municipal difficulties. This conference—as was the first one held last year—was based on the premise that no group has a greater interest in the effective application of city planning and traffic engineering techniques to revive and preserve the amenities of the cities than the businessmen whose prosperity is so closely related to the economic health of their communities.

Major sessions during the conference were devoted to the following subjects: planning the development of the smaller community, planning and the municipal budget, parking and truck loading, city streets and modern transportation, and planning and redevelopment of the larger community. The information on traffic and parking action, and on Detroit's planning progress will be found of special interest, as will the thoughtful paper by Carl H. Chatters on "Financial Aspects of Urban Development."

Milwaukee Urban Redevelopment

BLIGHT ELIMINATION AND URBAN REDEVELOPMENT IN MILWAUKEE—*Report of the Redevelopment Coordinating Committee. June* 1948. 190 *pp.* $2.50.

This report is a major contribution to the literature on urban redevelopment because it integrates the studies of various Milwaukee municipal agencies on the problem, and also because of its specific proposals as to how blighted areas can justifiably be delimited. The Redevelopment Coordinating Committee decided to use the appraisal techniques developed by the Committee on the Hygiene of Housing of the American Public Health Association to determine quality of housing and quality of environment in evaluating areas of urban blight. The substance of the report is the delineation of findings based upon this method including many maps in color, supplemented by other relevant information as applied to 11 census tracts selected for initial study. Participating directly in the survey were the Health Department, the Board of Public Land Commissioners, and the Office of the Tax Commissioner.

The primary recommendation of the report is that the Common Council adopt the Appraisal Method as the official standard for determining redevelopment or rehabilitation areas.

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Planning Report for San Jose, Costa Rica

A PLANNING PROGRAM FOR THE CAPITAL OF COSTA RICA—*By Anatole A. Solow. Div. of Labor and Social Information, Dept. of Economic and Social Affairs, Pan American Union, Washington 6, D. C. Nov.* 1948. *Mimeo.* 61 *pp.*

This study was made under a cooperative arrangement between the municipality of San Jose, the Costa Rican government, and the Pan American Union. The report proposes, in general terms, a number of steps for the physical development of the city and its metropolitan area. It also indicates the administrative, legal and technical requirements needed to make the planning process effective.

As a first step the report recommends the appointment of a national urban planning commission to deal with the planning of San Jose and other urban areas, to prepare suitable planning and zoning legislation, and to undertake collection of basic information and preparation of a master plan for the development of the metropolitan area of San Jose. The report suggests that the Costa Rican government subsidize the training of several students in city planning, as the nucleus for an eventual urban planning staff.

State Resources Report

RESCUED EARTH, A STUDY OF THE PUBLIC ADMINISTRATION OF NATURAL RESOURCES IN TENNESSEE—*By Lee S. Greene, V. H. Brown, and E. A. Iverson. Published for the Bureau of Public Administration by the University of Tennessee Press, Knoxville, Tenn.* 1948. 204 *pp.*

This is one of a series of monographs published in Alabama, Kentucky, Mississippi, North Carolina, South Carolina, and Tennessee on the administration of each state's natural resources. Representatives of seven southern universities and the Tennessee Valley Authority joined in 1945 to make a cooperative attack upon this subject, as they recognized that many of the South's most pressing problems are regional rather than local in character..

Although each university group carried on its own research, the work in the six states was carefully coordinated by a joint planning committee, and the studies were edited and put through the press by the Bureau of Public Administration of the University of Alabama. Each report makes definite suggestions for improvement in the methods of natural-resources administration.

Government Finance Factbook

FACTS AND FIGURES ON GOVERNMENT FINANCE, 1948-1949—*The Tax Foundation, 30 Rockefeller Plaza, New York, N. Y.* 143 *pp.*

This excellent monograph makes available in convenient form the most important current and historical statistics relating to the fiscal operations of our federal, state, and local governments. It presents concrete, up-to-date information on government spending and the sources of government funds by means of numerous tables and graphs. It should be of real value in focusing further attention on the need for unraveling the present tangle of intergovernmental fiscal relations.

1948 Planning and Civic Annual

AMERICAN PLANNING AND CIVIC ANNUAL, 1948—*American Planning and Civic Assn., 901 Union Trust Bldg., Washington, D. C.* 180 *pp.* $3.

This volume contains reports on progress in national and state park and conservation planning, as well as reports of some of the excellent talks and discussions presented at the Association's annual meeting in Newark in May 1948. Notable sections include those on County and Metropolitan Planning, Urban Transportation, the Newark Plan, and Planning Education, with discussions of the citizens' part in Planning. Two of the outstanding talks reported in the volume are those by Paul Windels on "The Metropolitan Region at the Crossroads," and by Thomas H. Reed on recent progress in municipal annexation and consolidation programs.

Planning and Housing Reports

BROOKLINE, MASS. — Annual Report on Long Range Planning. Brookline Planning Board. Dec. 1948. Mimeo. Graphs. Tables. 24 pp.

BROOME COUNTY, N. Y.—Annual Report, 1948. Broome County Planning Board, County Office Bldg., Binghamton, N. Y. Mimeo. 9 pp.

CINCINNATI, OHIO—Public Transit. Metropolitan Master Plan Study. City Planning Commission, Cincinnati. Dec. 1948. Maps. Tables. $1.

CLEVELAND, OHIO — Does Good Housing Pay? Regional Association of Cleveland, Housing Center, West Mall Drive. By W. P. Phelan. 1948. Mimeo. Illus. Charts. 25 pp.

FAIRFIELD, CONN.—The Town Plan. Technical Planning Assoc., Inc., New Haven. Nov. 1948. Illus. Maps. Charts. 21 pp.

KANSAS CITY, MO. — Metropolitan Area. City Plan Commission, Kansas City. Oct. 1947. Illus. Maps. Tables. Charts. 50 pp. $1.

LOS ANGELES, CALIF.—Zoning and You. The Regional Planning Commission of Los Angeles County, 205 South Broadway, Los Angeles. Illus. 14 pp.

LOUISVILLE, KY. — Five Years of Development, 1943-1948. Louisville Area Development Association, 301 South Fifth St.. Nov. 1948. Illus. 20 pp.

MEMPHIS, TENN. — Annual Report, 1947-1948. Memphis Housing Authority, 264 North Lauderdale. Illus. 32 pp.

OKLAHOMA CITY, OKLA. — The Comprehensive Airport Plan. City Planning Commission. Nov. 1948. Mimeo. Maps. 22 pp.

SAINT LOUIS, MO.—Major Street Plan for Saint Louis. City Plan Commission. 1948. Maps. 62 pp.

TENNESSEE—Local Planning in Tennessee, July 1947-1948. Tennessee State Planning Commission, 432 Sixth Ave. North, Nashville. Maps. 54 pp.

UNITED STATES—Rental Housing—Direct Investment by Insurance Companies and Savings Banks. Office of the Administrator, Housing and Home Finance Agency, Washington, D. C. 1948. Mimeo. 47 pp.
—How the Housing Act of 1948 Affects the Federal Housing Program. Housing and Home Finance Agency, 1626 K St., Washington 25, D. C. Oct. 1948. Mimeo. 11 pp.
—Truths About the Housing of Negroes. Omega Psi Fraternity, 913 U St., NW., Washington, D. C. Illus. Unpaged.

VANCOUVER, B. C. — Preliminary Report Upon Administration of the Plan. Harland Bartholomew and Assoc., Town Planners, 317 North Eleventh St., St. Louis, Mo. Aug. 1948. 24 pp.

WASHINGTON—The Use of Building Codes and Land Use Zoning Ordinances in Washington Cities. Information Bulletin No. 111. Dec. 1948. Washington Municipal Bulletin publ. by Bureau of Government Research of the Univ. of Washington and the Association of Washington Cities, 266 J. Allen Smith Hall, Seattle. Mimeo. 8 pp.

Other Reports Received

AUGUSTA, GA.—Year Book 1947 of the City Council. Illus. Charts. Tables. 225 pp.

CALIFORNIA—The California Districts Securities Commission. Published by the Irrigation Districts Ass'n of California, 932 Pacific Bldg., San Francisco. 6 pp.

CHATTANOOGA, TENN.—Annual Report. Compiled by the Board of Commissioners from April 1947-June 1948. Illus. 39 pp.

EASTON, PA.—Annual Report 1947. Compiled by the City Clerk. Charts. Tables. 73 pp.

GRAND RAPIDS, MICH.—Annual Report on the Operation of the City's Sewage Treatment Works, 1947-1948. Charts. Tables. Graphs. Mimeo. 28 pp.

HOUSTON, TEXAS — Houston Port Book. Published by the Harris County Houston Ship Channel Navigation District, November 1948. No. 2. Illus. 64 pp.

KANSAS CITY, MO.—Annual Report of the Director of Finance for year ending April 1948. Tables. Charts. 89 pp.

LEWISTON, IDAHO—Annual Report for year ending June 1948. Compiled by the City Engineer for the Engineering, Airport, Water, and Street Depts. Tables. Charts. 42 pp.

MARYLAND—Maryland Fiscal Scene. By J. M. Ray and C. Bracken. Bureau of Public Administration, University of Maryland, College Park. Charts. 103 pp.

MASSACHUSETTS—Charges Against Revenue, Departmental Maintenance Expenditures in Percentages, 1947. Published by Boston University, Bureau of Public Administration, 236 Bay State Rd., Boston. Chart. 1 p. $0.25.

NEWARK, N. J.—Municipal Yearbook 1947-1948. Newark, City of Opportunity. Prepared by the City Clerk. Illus. Tables. Charts. 94 pp.

NEWARK, N. J. — Report on Port Authority Operation of Port Newark and Newark Airport, March 22-September 21, 1948. Published by the Port of New York Authority, 111 Eighth Ave., New York. Illus. Mimeo. 17 pp.

NEW YORK—Annual Report 1947 of the Superintendent. State of New York, Dept. of Public Works. Illus. Tables. 283 pp.

NEW YORK, N. Y.—Community Organization for Health and Welfare Services. Compiled by M. M. Otto. Russell Sage Foundation, 130 East 22nd St., New York. 15 pp. $0.20.
—Standards of Hydraulic Institute. General Section. Published by the Hydraulic Institute, 90 West St., New York. 6 Charts. Graphs. Tables. $3.00.

OGLESBY, ILL.— Semi-Annual Report of the City of Oglesby, May 1-October 31, 1948. Prepared by E. Hand, City Clerk. Tables. 29 pp.

PENNSYLVANIA — Municipally Owned Water Works in Pennsylvania. By J. H. Ferguson and C. F. LeeDecker. Institute of Local Government, Pennsylvania State College. 1948. Tables. 150 pp.

PETALUMA, CALIF.—Petaluma Report 1947-1948. Tables. Illus. 25 pp.

POCOMOKE, MD.—Improving the Government of Pocomoke. By J. M. Ray. Bureau of Public Administration, University of Maryland, College Park, 1948. Chart. 30 pp.

ST. PAUL, MINN.—1947 Report of the Minneapolis-Saint Paul Sanitary District. Administration Building, Childs Road, St. Paul. Illus. Tables. Charts. 98 pp.

SCHENECTADY, N. Y.—Your City Government, 1947. Prepared by the City Manager. Illus. 44 pp.

SEATTLE, WASH. — Annual Report of the City Engineer Department, 1947. Statistics. Mimeo.

TEXAS — The State Property Tax in Texas. By L. F. Anderson. The Bureau of Municipal Research, University of Texas, Austin. 1948. Tables. 132 pp. $1.00.

TOLEDO, OHIO—Annual Report 1947 of the Division of Streets. Prepared by the Commissioner for the Division of Streets. Mimeo. Tables. 117 pp.
—Parking Survey for Downtown Toledo. Report by the Toledo-Lucas County Plan Commissions. Sept. 1948. Illus. Tables. Graphs. 21 pp.

TORONTO, CANADA—Annual Report 1947 of the Street Commissioner. Illus. Graphs. Tables. 43 pp.

UNITED STATES—Information on Recreation Services and Facilities of the Federal Government. By Federal Inter-Agency Committee on Recreation, Interior Bldg., Washington 25. Mimeo. 1 p.

UNITED STATES — Out-of-City Fire Protection Service. Report No. 297. By the United States Conference of Mayors, 730 Jackson Place, NW., Washington, Oct. 20, 1948. Mimeo. 21 pp.

UNITED STATES—Public Power Pays. By Carlton L. Nau. American Public Power Ass'n, 1757 K St. NW., Washington. Illus. Tables. 32 pp. $1.00.

UNITED STATES — Water Quality Criteria. Published by the Interstate Commission on the Potomac River Basin, 202 Transportation Bldg., Washington. Illus. 25 pp.

VIRGINIA—Salaries and Working Conditions of Firemen in Various Virginia Fire Depts. Report No. 313. League of Virginia Municipalities, 902 Travelers Bldg., Richmond. Sept. 1948. Mimeo. Tables. 14 pp. $0.50.

WASHINGTON — The Administrative Supervision of State Public Institutions. By D. H. Webster. Bureau of Governmental Research and Services, University of Washington, Seattle 5. Sept. 1948. Mimeo. Tables. 59 pp.

HAWAII — Controller's Report of the City and County of Honolulu for year ending Dec. 1947. Tables. 67 pp.

WAUKESKA, WIS.—Annual Report of the City Engineer, 1942-1947. Tables, Charts, Maps. 37 pp.

It's a NYE

Ewing Township

January 12, 1949

Mr. Odorless Incinerator Co.
51 E. 42nd Street
New York, New York

Attention: Mr. Em. Nose

Dear Sir:

The Ewing Township incinerator committee wish to express their thanks to you and your staff and in particular, Mr. Crane for the splendid job in building our much needed incinerator.

You might be interested in knowing that since our official opening on December 7, 1948, we have not had to use the blower at all, and we only once used the oil burner.

This was when we had a 36 hour continuous rain which of course made the garbage wet but even then only a spray of oil was need to start the fire.

You might be interested in what we were able to accomplish when we were faced with an emergency. On December 27, Hamilton Township had a very bad situation and asked us to help them temporarily. So on December 28 we not only burned our waste but Hamilton Township as well, in an 80 ton job. This was a total of 48 tons in one 8 hour day, without the blower or oil burner and with a personnel of one Superintendent and two men.

We feel that our plant is one of the most economically and efficient plants that we have seen anywhere and extend to you or any one who may be interested an invitation to visit our plant at any time.

It is our earnest wish to have many people see what good government can do if given an even break.

Very truly yours,

Joseph D'Ammunzio

Ewing Township Incinerator Committee
Joseph D'Ammunzio - Chairman

JD:mjf

The Ewing Township, N. J., direct dump incinerator designed by Micklewright and Mountford of Trenton, is Nye's 314th incinerator installation. This single furnace plant has proved in actual tests that its capacity is double the amount called for in the specifications. The township has contracted to destroy garbage from surrounding areas as well as its own. The fees charged will greatly reduce Ewing's operating costs. This is an excellent example of good planning by an American community.

NYE ODORLESS INCINERATOR COMPANY INC.

51 East 42nd St., New York City 17

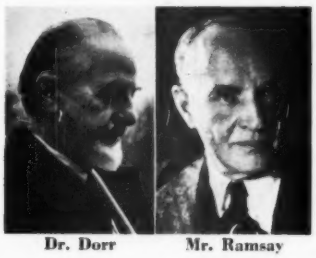
News and Illustrations

Items of interest to city, town and county officials and others concerned with the economical construction and efficient operation of public improvement undertakings

Ramsey New President of Dorr Company; Dorr Chairman of Board

Dr. John Van Nostrand Dorr has been elected Chairman of the Board of Directors of The Dorr Co., 570 Lexington Ave., New York 22, N. Y., and continues as Chairman of the Board of Dorr-Oliver, Ltd., London; he has been succeeded in the presidency by Elmer R. Ramsey, previously operating vice-president.

Chemical, metallurgical, and industrial engineer, prolific inventor, and founder of Dorr, Dr. Dorr, in telling of the founding of the company, said, "We started some 40 years ago, literally as a 'one-man' organization to apply a succession of inventions made by me in plant operation in the Black Hills of



Dr. Dorr Mr. Ramsay

South Dakota." Dr. Dorr's life has been spotlighted by a series of inventions that include the Dorr Classifier, Thickener, and Agitator, which have made it possible to convert intermittent chemical processes to continuous ones and have contributed to placing municipal sewage- and water-treatment on a sound engineering basis.

For these and other technical achievements, Dr. Dorr has been awarded medals of merit by the Franklin Institute, the American Institute of Mining and Metallurgical Engineers, the Society of the Chemical Industry, the National Association of Manufacturers, and the five American chemical societies which sponsor the annual Perkins Medal award. Dr. Dorr has stated that the international Dorr organization of today is the end product of a chain reaction that started with a basic urge to invent, stemming from two-and-a-half years' association with Thomas A. Edison which led to his determination to major in chemistry at Rutgers University and adopting, as his own, Edison's motto, "Try anything once."

Elmer E. Ramsey started working with Dr. Dorr almost 35 years ago, a year after completing his schooling at the Colorado School of Mines. After a year of test work, design, construction, and initial operation at various gold cyanide mills where he gained first-hand experience with the original Dorr Classifier and Thickener, Mr. Ramsey became a junior engineer with the Dorr Cyanide Machinery Co., predecessor of the present Dorr Co. In 1920 he was Western Manager of the Equipment Sales Dept.; seven years later he became Assistant General Sales Manager, and then moved up to the positions of Executive Assistant to the President, vice-president in Charge of the Engineering Department, operating vice-president, and now, President. He has been a director of the company and a member of its Executive Committee since 1933.

New Westinghouse Ceilings

The Westinghouse Electric Corp., 306 Fourth Ave., Pittsburgh 30, Pa., has reduced the ceiling from 20% to 10% on apparatus lines with the exception of water-wheel generators, frequency changers, synchronous condensers, stokers, and power transformers above 15,000 kva.

Because of continuing increases in manufacturing costs, price increases are in effect on steam condensers, feedwater heaters, and evaporators (5%); a.c. motors over 50 hp and integral-hp d.c motors (5%); turbine generators, 20,000 kw and above (10%).

New Attachments Make Jeep Important Utility Tool

Especially engineered for use with jeeps equipped with the recently developed Monroe hydraulic lift, seven newly designed implements manufactured by the Newgren Co., Butler, Pa., equip the 4-wheel-drive jeep for road construction and municipal-maintenance work. The attachments are a snow plow, terracing blade, scoop, earth mover, mower, post-hole digger, and a hydro-grader and terracer.

The jeep serves as a utility truck when the Newgren body extension is added, giving 7 extra cubic feet of carrying capacity and 6 extra cubic feet of floor space. With the body extension and the Newgren 8-foot trailer, loads in excess of 5,000 pounds can be transported at highway speeds.

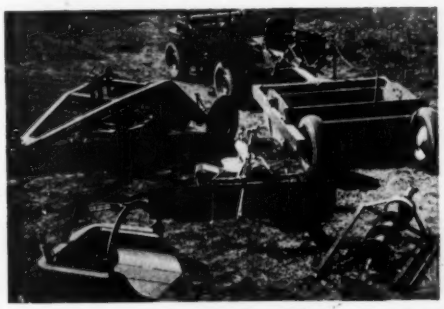
The hydraulic lift, manufactured by the Monroe Auto Equipment Co., Monroe, Mich., provides finger-tip control to raise or lower implements, and down pressure on implements adjustable up to 500 pounds; the implements can be attached to the lift or detached in about a minute.

Useful for terracing, back-filling, road work, and reclamation projects as well as for snow removal, the Rogers Sno-Dozer comes with either a 5- or 6-foot blade of 24-inch depth and reversible cutting edge.

With a turning radius of 360 degrees, the lift-type terracing blade is suited for building terraces, ditches, ponds; maintenance; landscaping, grading, and finishing, and removing overburden. With a cutting width of 24 inches, the scoop levels, scoops, and carries 6 cubic feet. The amount of the cut on the scoop is adjustable from the driver's seat.

The all-purpose earth mover handles a cubic yard at speeds up to 25 mph. The lift-type mower, available in 6- or 7-foot cutter bar lengths, hydraulically operates on hillsides as well as on level ground; the automatic safety break-away device releases the cutter bar if it strikes a hidden obstruction. The lift-type post-hole digger digs at the rate of a hole a minute; it is powered from the jeep power take-off and the auger is reversed when the hole is dug. If the implement becomes stuck in roots, the power is reversed, and the digger frees itself by unscrewing.

For road-conditioning, leveling and sloping, hole and ditch-filling, general maintenance, landscaping, or for making angle cuts or dikes, the hydro-grader and terracer work with a single man to do the entire job.



Attached to the jeep is the earth-mover. The scoop and the post-hole digger are in the foreground, the terracing blade in the center, and the hydro-grader and terracer at the upper left.

WHICH of these DREDGING JOBS DO YOU HAVE?

DO YOU WANT TO...

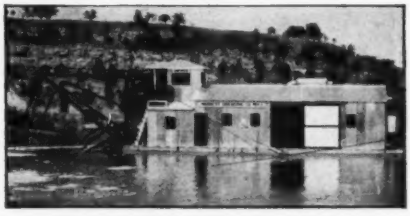
1. Restore eroded beaches?
2. Deepen lakes or channels?
3. Clean out reservoirs?
4. Beautify parks and lakes?
5. Fill in undesirable lowlands?
6. Do any unusual dredging job?

Whatever the job . . .

Morris Engineers study and analyze your needs. They recommend the exactly right dredge. They design, build and install it all ready for operation.

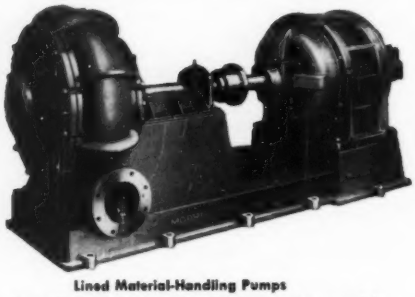
Should your dredging jobs occur in different cities or states, Morris will build a portable dredge. Quickly and easily dismantled, you can move it from place to place at minimum expense.

All dredges are complete with electric motors, Diesel or gasoline engines . . . permanent or portable hull . . . rigging, hoist, spuds, ladder . . . ladder head and any of various cutters . . . piping and fittings. Morris will also furnish an operator, if necessary, for an initial period of time until your own operator learns how to operate and maintain the dredge.



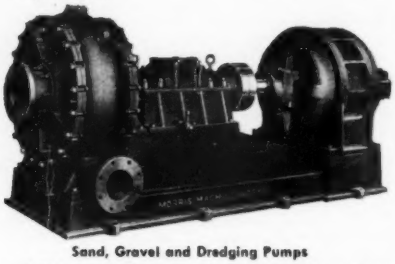
The Midwest Dredging Company Dredge—one of the newest Morris installations.

FOR MORE THAN 87 YEARS, Morris has built dredges and dredging machinery for almost every requirement.



Lined Material-Handling Pumps

Specially built for handling highly abrasive materials. Maximum resistance to wear.



Sand, Gravel and Dredging Pumps

Built in standard, medium duty and extra heavy types, in sizes from 4" to 36", with electric motor, steam, Diesel or gasoline engine drive.

ORDER NOW! If you need your dredge in the spring, now is the time to order it. Write for free bulletin today!

MORRIS MACHINE WORKS
Baldwinsville, N. Y.
Branch Offices in Principal Cities

MORRIS *Centrifugal Pumps*

New Street Signs for Bethlehem, Pa.

Bethlehem, W. Va., recently installed aluminum street signs made by Lake Shore Markers, 654 West 19th Street, Erie, Pa. Here, gathered under one of them, are the interested municipal officials. Left to right are Lester Whitecotton, Deputy Police Sergeant; Bert Ruch, Recorder; Henry Hores, Ray Klos, James C. Ruthers, Councilmen; James B. Garvin, Mayor; Charles L. Stricklin, Elvin Marsh, Vernon E. Drum, Councilmen, and Paul Herbold, Police Sergeant.

Consultant Specialist On Swimming Pools

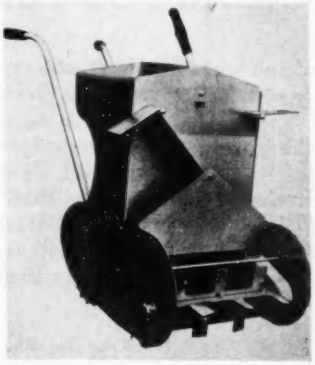
Chauncey A. Hyatt, 5555 Sheridan Rd., Chicago 40, Ill., specialist in swimming-pool design, operation, maintenance, renovation, plans, reports, and surveys, has a background in the field that dates back to 1912, when he was in charge of swimming at the first public-high-school swimming pool—at the New Trier Township High School in Chicago. During the last four years, Mr. Hyatt has done extensive research on bromine disinfection and diatomite filtration. Before that,, he was Swimming Pool Sanitarian for the Illinois State Health Dept., supervising the operation of over 600 swimming pools and passing on all new swimming-pool designs.

What's the Best-Known Name in Hotels?

"An American Adventure" is an appropriate title for the story of Ellsworth M. Statler. His hotels are really a part of almost every element of American life, but almost especially of the municipal aspect because of the many governmental conventions. Let's look at THE AMERICAN CITY roster for the first quarter of this year. Conventions at Statler Hotels will be held in New York, Detroit, Boston, and Washington, of, respectively, New York State Sewage Works Association, Association of Asphalt Paving Technologists, Association of Highway Officials of the North Atlantic States, and American Society for Public Administration.

The Statler story, told mostly in sketches, shows that in 1901 Statler built his first hotel. From this beginning the present chain of Statler Hotels has developed in various cities including Cleveland, Boston, St. Louis, Detroit, New York, Washington and Pittsburgh (Statler's William Penn). A new Statler Hotel is now being built in Los Angeles.

Power Snow Plow Removes 24-Inch Snow at 25 fpm



G. N. Metal Products, 28 Gillette Ave., Buffalo 14, N. Y., makes a heavy-duty snow remover with an adjustable chute that can cope with snow up to 24 inches in depth at a speed of 25 feet per minute—with the propeller throwing the snow, by baffle-plate adjustment, from 1 to 35 feet.

The Snostar, with 4-pedal rotary blades, is driven by a 4-cycle, 3-hp, Ultimotor engine and is equipped with a foot-operated positive-action clutch. It is 30 inches high, 18½ inches wide, and 56 inches long.

THE MODERN LAWN MOWER SHARPENER

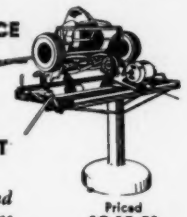
CUTS MAINTENANCE COSTS

•

LOWER CAPITAL INVESTMENT

•

Economically and Quickly Sharpens All Municipal Mowers



Priced $241.50 (less motor)

Sharpens All Reel Type Mowers • Hand, Power or Gang • 10 to 20 Minutes • No Dismantling No Extra Attachments Needed

All reel type mowers, from 5-inch edgers to 36-inch power mowers, are quickly sharpened to extreme ends of both left and right twist reel blades. Handle, wheels, roller and motor remain in place when sharpening is in process. Bed knife is sharpened in same brackets that hold mower in grinding position. No extra attachments required. One lever puts mower or bed knife in grinding position. 100% steel construction. Grinding head rides on five ball bearing races. Small, compact, easy to operate. Sharpens wood chisels, joiner knives and planer blades without extra attachments. Skate Sharpener Attachments available.

1/3-hp. G.E. 60-cycle Motors now available—$21.50 extra.

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ORDER NOW • IMMEDIATE DELIVERY

MODERN MFG. CO.

160 N. FAIR OAKS AVE. • PASADENA 1, CALIF

PREMAX

Proper Methods of House Numbering

Municipalities contemplating a change in house numbering methods to prevent duplication and confusion in the present system should study the Block System which has been so successful in other cities, large and small.

SEND FOR THIS ANALYSIS

Send for special bulletin explaining in detail the better method of house numbering.

PREMAX PRODUCTS

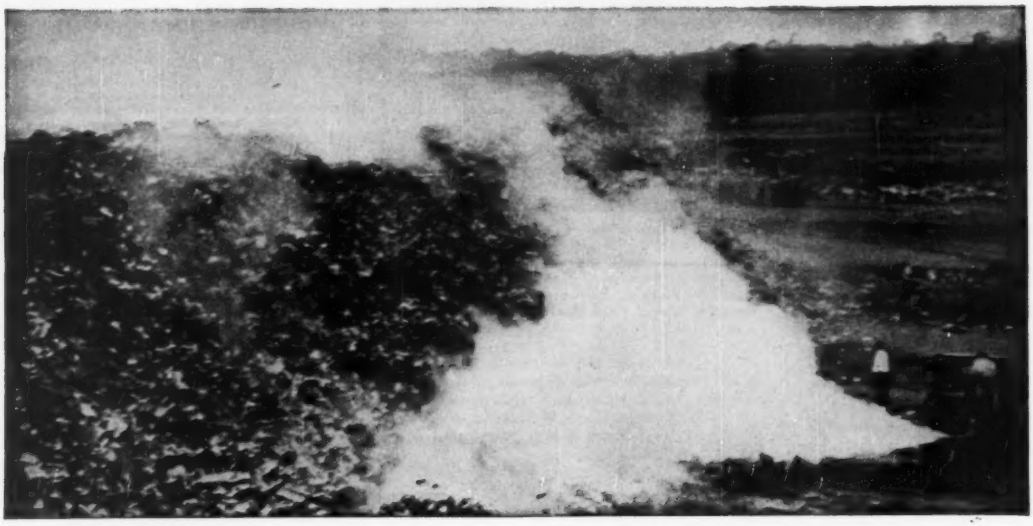
DIVISION CHISHOLM-RYDER CO., INC.

4946 Highland Ave., Niagara Falls, N. Y.

PROVIDE FOR TIFA IN YOUR BUDGET

...FOR FLY AND MOSQUITO CONTROL

...FOR BETTER HEALTH



...DEATH-DEALING FOG FOR INSECTS

SOLVE YOUR fly, mosquito, weed and health problems *quickly* and *efficiently* with TIFA . . . a compact, easily handled applicator, powered by its own standard-make gasoline engine.

TIFA discharges the newly developed as well as older type insecticides and hormones *of the selected particle size in a true, clean fog* . . . spreads quickly over wide areas . . . clings to all objects in its path . . . permeates the smallest crevices.

TIFA is essential to your community's health and well-being. Use TIFA on garbage and fill dumps, in recreational areas and swamps. PORTABLE . . . BUILT TO LAST . . . ECONOMICAL. The Health Department of a famous city estimated that TIFA insect control costs less than 2% of previous methods.

TIFA TODD INSECTICIDAL FOG APPLICATOR

Write for illustrated folder on sensational TIFA—full details on how it operates, what it does and official comments on its astonishing effectiveness.

A Product of

COMBUSTION EQUIPMENT DIVISION

TODD SHIPYARDS CORPORATION

81-16 45th AVE., ELMHURST, QUEENS, N. Y.

Controlled Beam Lamps For Street Lighting

Sylvania's street lamp, mounted with series film cut-out prong base, for residential and secondary traffic streets.

The development of hard-glass reflector lamps has been the most outstanding advancement of incandescent lamps in recent years. The wide acceptance of this type of lamp is proof of its effectiveness in controlling generated light into beams of pre-determined patterns. In particular, the sealed-beam automobile-headlight lamp has shown how well light can be projected in narrow, well-defined beams.

It seemed reasonable, therefore, to consider the same type of lamp for the illumination of streets and highways, particularly those not in the white-way or super-highway categories. Such considerations as simplicity of installation, permanence of reflector surface, minimum effect of atmospheric dust and other deteriorating conditions, and low over-all cost for delivered light has resulted in the development of a new line of street-lighting lamps by Sylvania Electric Products, Inc., Salem, Mass.

Essentially, these lamps consist of a deep upper reflector sealed to a refractor-lens cover-plate, forming a globe just under 5 inches in diameter. One limiting factor is that a 5-inch bulb is not entirely practical with wattages over 200-250. Both the 1,000 and 2,500-lumen street-lighting lamps fall within this range and these sizes are primarily used for residential thoroughfares, secondary business streets and rural highways.

Any unit that will be used in residential areas must take into consideration the light directed toward houses. Although some light is desirable on porches, too much light at high ang'es toward second-story windows can be annoying. For this reason the cut-off of light from the PAR street lamp is about 55° on the house side and slightly higher on the street side toward the opposite line of houses.

Because of the inherently higher cost of this type of lamp which successfully does the job of the lamp reflector, refractor, and film cutout adapter, lamp life was designed on a group-replacement basis. Service life is in excess of 2,000 hours. Orientation of the asymmetric lamp is achieved by the film cut-out prong base.

This new street-lighting lamp is readily adaptable to either new or existing systems. The unit is light in weight (approx. 18 ozs.) and therefore a minimum-size mast-arm or other physical support is needed. Tests have shown that, at ordinary mounting heights (20 feet or more), it is difficult to break one of these lamps, even with an air rifle. They offer in the lower lumen categories (1) greater utilization of the generated lumens, (2) higher-maintained light output, (3) low cost of operation, (4) easy extension of street lighting into new areas, and (5) simple and effective means of modernizing outmoded systems.

Coldwell New President Of Ford, Bacon & Davis

E. S. Coldwell has been elected to succeed James F. Towers as president of Ford, Bacon & Davis, Inc., Engineers, 39 Broadway, New York 6, N. Y. Mr. Towers will continue as chairman of the Board of Directors.

Look!

ONE-HAND

Quality

LINE LOCATOR

A soundly designed sturdily built precision *Quality* locator

The *Quality* locator that has set new high standards for performance

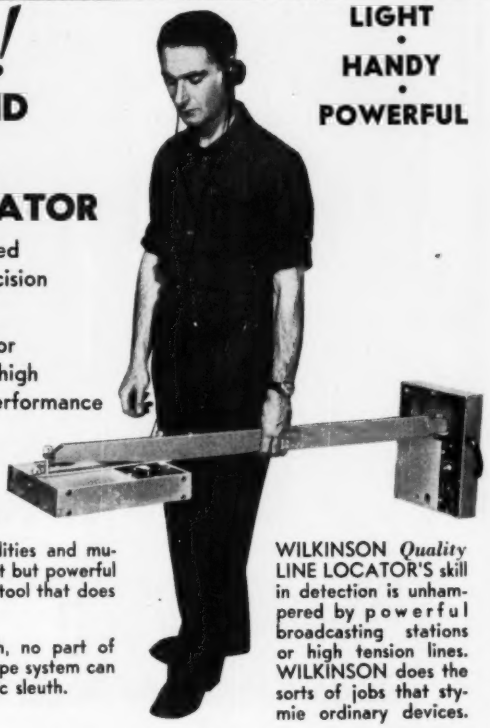
WILKINSON

Quality

LINE LOCATORS

used by leading utilities and municipalities. It is light but powerful —a simple one-man tool that does EVERY job.

Regardless of depth, no part of your underground pipe system can escape this electronic sleuth.



LIGHT • HANDY • POWERFUL

WILKINSON *Quality* LINE LOCATOR'S skill in detection is unhampered by powerful broadcasting stations or high tension lines. WILKINSON does the sorts of jobs that stymie ordinary devices.

Equip with a PROVEN *Quality* Professional Instrument

WILKINSON LINE LOCATOR

LIGHT • COMPACT • POWERFUL

Write for complete literature and prices

Originators of the quality, light, compact, all-purpose underground Locator.

WILKINSON PRODUCTS CO.

P. O. Box 1774, Wilshire-La Brea Station, Los Angeles 36, Calif.

REEVES ARMY TWILL

"CUT OUT"

for good looks and longer wear

REEVES ARMY TWILL is built to "take it"! Over 100 million yards of this versatile, high-quality, combed cotton fabric have been delivered to the Armed Services—exceeding rigid Government specifications.

Whatever your industrial requirements may be, you'll find Reeves Army Twill outstanding. It resists rough usage. It stands up under extreme laundering conditions. And it keeps a neater appearance longer.

"FROM COTTON TO CUTTER"

Reeves Army Twill is Sanforized—residual shrinkage is less than 1%. It comes in a wide range of vat-dyed colors fast to sun, water and perspiration. It is one of many durable fabrics made by Reeves for industrial purposes. Write for the names of manufacturers specializing in your industry.

REEVES BROTHERS, INC. 54 WORTH STREET, NEW YORK 13, N. Y.

REPRESENTATIVES IN: *Akron • Atlanta • Boston • Chicago • Dallas • Los Angeles • Philadelphia • Portland, Oregon • St. Louis • Montreal • Toronto*

That Old Swimming Hole

F. Garcia Sainz of Layne-Hispano Americana forwarded this picture of a Mexican version of the old swimming hole, formed from a Layne well.

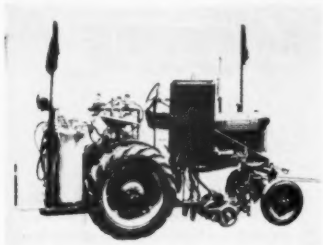
PHOTOGRAPH COURTESY OF LAYNE & BOWLER, INC., MEMPHIS, TENN.

John P. Kleber George L. Illig, Jr.

Traffic-Line Marker Paints 1, 2, or 3 Lines

Butler Industries, Inc., 6450 Le Grand Ave., Detroit 11, Mich., manufactures a traffic-line marker which is self-propelled and can be used for painting one, two, or 3 lines simultaneously in widths up to 4 inches (special widths are available as ordered).

The model L-4 can be tractor-mounted or set up for trailer mounting



The Butler L-4 traffic-line marker.

on trucks. All spraying and bead-dispensing operations are controlled from the panel of the marker. It can handle two different colors of paint at one time, in quantities up to 15 gallons each. Air agitation is provided in the paint tanks, and an auxiliary hand gun is provided as standard equipment.

Instrument Use Increasing

Industrial instrumentation is fast emerging as one of the most important influences on improved living standards, better working conditions and ultimately lower prices, Henry F. Dever, president of Brown Instruments division of the Minneapolis-Honeywell Regulator Co., 2709 Fourth Ave., Minnealoplis, Minn., reports. "The ratio of instrumentation to over-all plant expansion," he declared, "has increased four-fold since 1939."

Personnel Changes at Calgon

John P. Kleber has been appointed to succeed Owen Rice as manager of the Division of Municipal and Process Waters of Calgon, Inc., Pittsburgh, Pa., with George L. Illig, Jr., as his assistant.

Mr. Kleber's principal duty will be the direction of technical sales and service work in connection with the threshold treatment of municipal water supplied with the vitreous phosphate material, Calgon. Threshold treatment is the introduction of minute concentrations of the chemical to inhibit lime scale, corrosion, and the precipitation of dissolved iron.

If your airport needs more building space, chances are you can get it faster, easier and at lower cost

Whether you need a new administration building or a hangar, Luria has the answer. For, in addition to the well-known line of Standard Hangars, Luria now offers you a practically unlimited selection of low-cost, *permanent*, steel-frame structures that are ideal for all types of airport buildings. And, like Luria hangars, they're *available now.*

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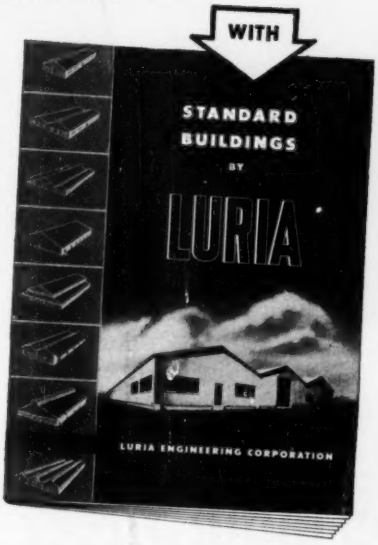


FOR CLEAN, SAFE
SHOWER ROOMS AND SWIMMING POOLS

"Bull Frog"
SAF-T-KLENZ

Removes rust stains, lime deposits, soap oil, body grease, algae formation leaving floors and decks practically slip-proof.
Minimizes conditions that breed and spread infectious germs.
Simply sprinkle Saf-T-Klenz on damp surface, scrub or mop lightly, and flush with water.

WRITE TODAY FOR LIBERAL FREE SAMPLE!
BERMAN CHEMICAL CO., 715 SUPERIOR ST., TOLEDO 4, OHIO

Regardless of weather or roads, motor trucks pick up and deliver most motion picture film at night to make it available for the next day's showing.

Midnight on Main Street

There are no alibis in the motion picture film delivery business. The "show must go on" seven days a week, twelve months a year . . . delay in the arrival of new film means disgruntled customers and lost revenue.

One film distributing firm operates 153 trucks more than 24,000 miles a day, serving 1215 theatres in nine different states. And there are many more GMC trucks in this fleet than any other make.

When you want reliable motor transport service . . . for any other type of company or commodity . . . GMC's day-in-and-day-out dependability really pays off.

GMC TRUCK & COACH DIVISION • GENERAL MOTORS CORPORATION

In the GMC line there are models for every public utilities hauling need . . . pickups, stakes, tractors, canopy express models and chassis units for special bodies . . . in a variety of wheelbases and a wide range of equipment options . . . with seven gasoline and two Diesel engines capable of handling gross combination weights from 4,600 to 90,000 pounds.

THE TRUCK OF VALUE

GMC TRUCKS

GASOLINE • DIESEL

Anti-Freezing Hydrant with No Cross-Connection Hazard

The Murdock Air-Lock compression unit, sanitary and anti-freezing, comes in sizes to be set in the ground 2, 3, 4, 5, or 6 feet.

The Murdock Air-Lock compression hydrant, which comes in a 1-inch size and is furnished with a ¾-inch-by-1-inch hose nozzle on request, was developed to meet the demand for an outdoor anti-freezing unit that could not be polluted by contaminated underground waters.

In this hydrant the water-supply riser pipe does not drain directly into the ground, but drains instead into the large chamber at the base of the hydrant, buried in the ground (this part of the hydrant is called the Air-Lock). After each operation of the hydrant, clean, pure water drains from the water-supply riser pipe into a "clean-water cup," a portion of the Air-Lock, where it remains, filling the cup until it overflows and, under normal conditions, flows into the ground.

Should subterranean water congest below the hydrant, pollution is prevented as a result of the design, which is based on the hydraulic principle that "two columns of water balance one another at a level with an air pocket between them."

The Model M-250 is manufactured by the Murdock Mfg. & Supply Co., Cincinnati 2, Ohio.

Executive Changes in De Laval

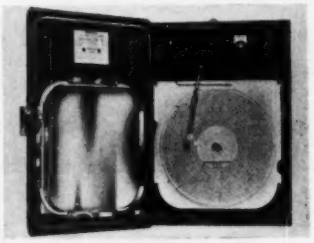
Henry W. Johnson is retiring as vice-president in charge of manufacturing of the De Laval Steam Turbine Co., Trenton, N. J., but will continue as director and member of the executive committee; C. Richard Waller has been named vice-president and director for engineering; H. G. Bauer, vice-president and executive engineer; J. P. Stewart, manager, commercial sales division, has been elected a vice-president; W. A. Reynolds assumes responsibility for the development and merchandising of new small products in addition to his position as manager of the present IMO pump and worm-gear divisions, and W. A. Neumann, Jr., has been appointed controller.

J. P. Stewart

Running-Count Recording Instrument

A new recording instrument, known as the Running-Count Recorder, has been announced by The Bristol Co., Waterbury, Conn.

Plotting a curve of number of operations against time, on a circular chart, it records the total count of intermittent operations and the time at which each one occurs. The instrument may be used on pumps, motors, engines, and other equipment that operate on an intermittent basis.



It's worth your while to use

PITTCHLOR

A high-test calcium hypochlorite containing 70% available chlorine. Granular, free-flowing, non-caking. Packed in 5 lb. cans (9 per case), and 130 lb. drums.

TO CONDITION NEW MAINS

Before placing new mains in service, or following repairs to old mains, Pittchlor makes it easy to disinfect against contamination. Do it in either of two ways, after pipes and fitting have been cleaned:

1. Place dry Pittchlor in mains before admitting water.
2. Inject a 1% available chlorine Pittchlor solution near the beginning of the new section.

Pittchlor is widely used for on-the-spot uses, such as this. See your jobber or write Pittsburgh Plate Glass Company, Columbia Chemical Division, Fifth and Bellefield, Pittsburgh 13, Pa.

COLUMBIA CHEMICALS

PAINT · GLASS · CHEMICALS · BRUSHES · PLASTICS

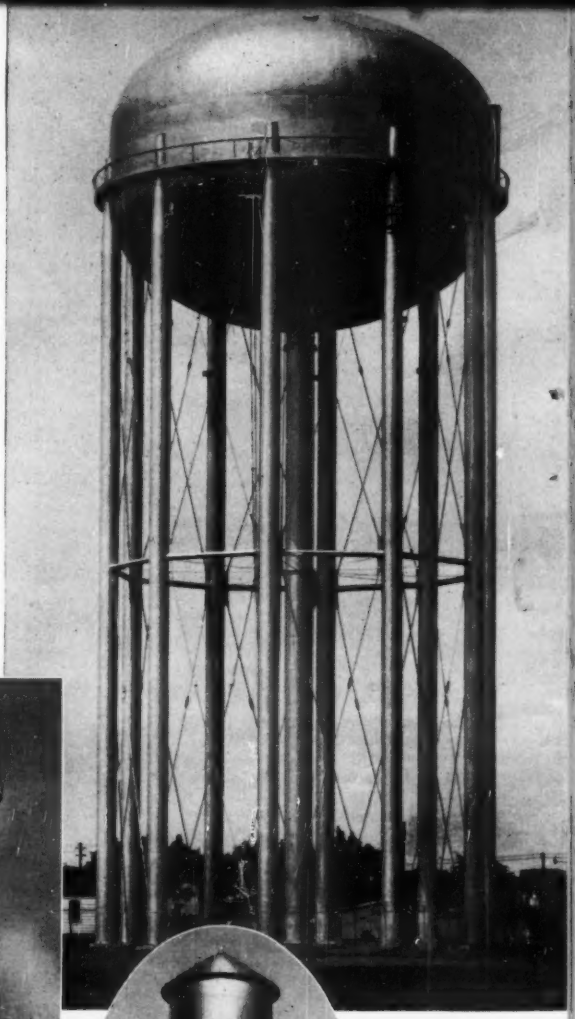
PITTSBURGH PLATE GLASS COMPANY

BEAUTY
EFFICIENCY
ECONOMY

FOR MUNICIPAL WATER STORAGE REQUIREMENTS

PITTSBURGH • DES MOINES

Elevated Steel Tanks



Match your specific water storage need with the right Pittsburgh-Des Moines Elevated Steel Tank! We will be happy to consult with you at any time, without obligation . . . meanwhile, write today for our comprehensive new Catalog: *informative, clear, complete!*

PITTSBURGH • DES MOINES STEEL CO.

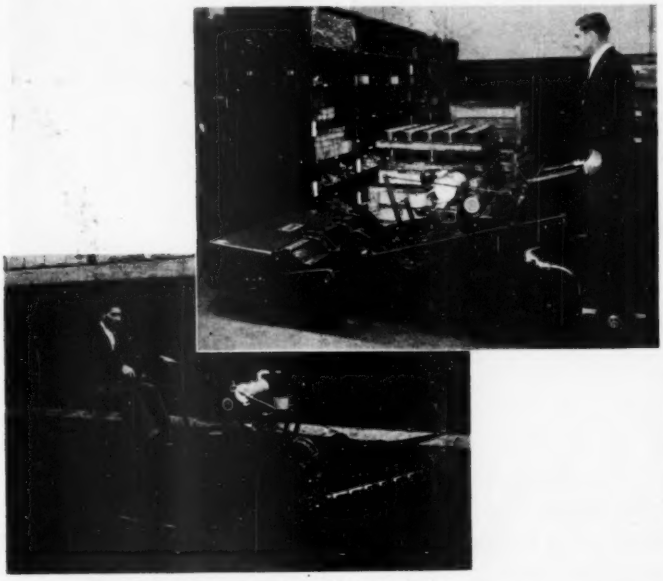
Plants at PITTSBURGH, DES MOINES and SANTA CLARA

Sales Offices at:

PITTSBURGH	3412 Neville Island	DES MOINES	913 Tuttle Street
NEW YORK	Room 915, 270 Broadway	DALLAS	1217 Praetorian Bldg.
CHICAGO	1216 First National Bank Bldg.	SEATTLE	920 Lane Street
SANTA CLARA, CAL.	619 Alviso Road		

Sweep Indoors and Outdoors With Adjustable-Angle Power Sweeper

The Rotosweeper with dirt box attached and the operator standing on a riding dolly . . .



. . . without the dirt box, and a sulky attached.

The Ideal adjustable-angle Rotosweeper can be used to either collect dirt while sweeping up, or to windrow for later collection by removing the dirt box and angling the brush to the right or left instead of setting the 42-inch brush straight acros.

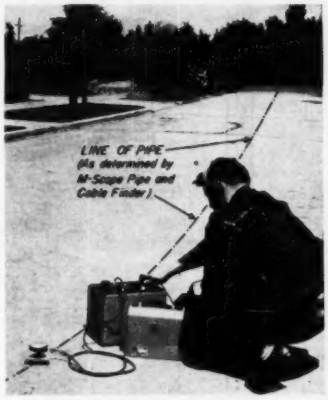
Where dust requires dampening befor sweeping, a pressure-sprinkler kit can be added that lays down a fine mist in front of the sweeper. The kit consists of a 10-gallon-capacity tank and pump, and two spray nozzles.

Power is provided by a 5-hp, 4-cycle Wisconsin engine, and the tractor is equipped with a power reverse to add to maneuverability. A riding dolly or sulky permits doubling of the speed of the sweeper. Bassine fiber brushes are available for ordinary dust and dirt in cleaning up indoors, and heavy-bass-fibered brushes may be obtained for heavy-duty sweeping outdoors.

The Ideal Rotosweeper line, manufactured by the Ideal Power Lawn Mower, Division of the Indian Motocycle Co., Springfield, Mass., includes three other models: the Standard, with 30-inch or 42-inch fiber brush and with a dirt box; the Steel Wire Brush type with dirt box, and 30-inch straight brush, consisting of 21 discs of 26-gauge wire, for oil and grease removal from hard-surfaced floors; the fixed-angle sweeper with 42-inch fiber brush, principally used for outdoor sweeping. Both the adjustable-angle and fixed-angle Rotosweepers may also be used next winter for clearing light snow from yards, walks, and driveways.

Pittsburgh
Chain-Link
Fence
★
PROTECTION
FOR ALL
MUNICIPAL
PROPERTIES
Pittsburgh
Steel Company

LESS SPADE WORK with the
M-SCOPE
leak detector



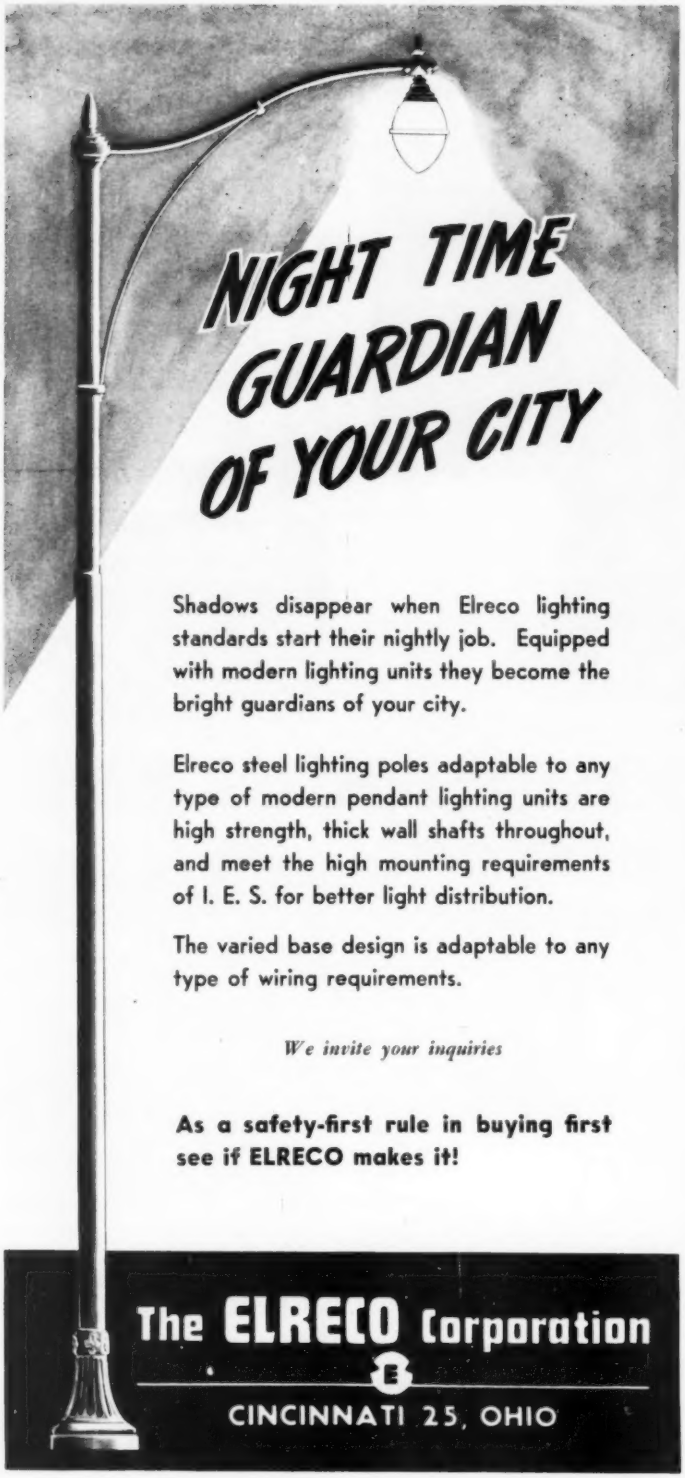
The M-SCOPE leak detector shows exactly where to dig.

Saves money — mess — and trouble!

REMEMBER—an undetected leak is an unmetered user!

Write for Booklet

FISHER
Research Laboratory, Inc.
Palo Alto, California



Shadows disappear when Elreco lighting standards start their nightly job. Equipped with modern lighting units they become the bright guardians of your city.

Elreco steel lighting poles adaptable to any type of modern pendant lighting units are high strength, thick wall shafts throughout, and meet the high mounting requirements of I. E. S. for better light distribution.

The varied base design is adaptable to any type of wiring requirements.

We invite your inquiries

As a safety-first rule in buying first see if ELRECO makes it!

The ELRECO Corporation

CINCINNATI 25, OHIO

Smithson Trash Receptacles

16 years of research and engineering have produced the world's most useful and most beautiful Trash Receptacle.

- LOW COST OF MAINTENANCE
- NO PAINTING
- FACTORY SUPPLY OF SPARE PARTS
- SMOTHERS FIRES
- MADE OF ALUMINUM
- NO CORROSION

Write today for more reasons why the City of Los Angeles purchased 577 of these units.

SMITHSON COMPANY

219 So. Mednik Ave., Los Angeles 22, Calif.

ZERO-LASTIC

Sealing Compound

Zero-Lastic Oil Resisting Compound.

Zero-Lastic Oil Resisting Joint Material for Airports.

Zero-Lastic Vertical Joint Filler.

Zero-Lastic Sloping Joint Filler.

Zero-Lastic Compound meeting Federal Specifications. SS-F-336a, put up in 50 lb., 25 lb. and 10 lb. packages.

Zero-Lastic Hair-Line Crack Filler.

Write for prices on these materials for Municipal and Public Work.

Rubberized Oil Plastics, Inc.

82 West Washington St., Chicago 2, Illinois

New Electric Typewriter From Remington Rand

This electric typewriter has a new face of type.

A new, quiet, streamlined electric typewriter is offered by Remington Rand Inc., 315 Fourth Ave., New York 10. Especially notable is the centralization of all controls to one panel which faces the operator and is immediately at her fingertips. Other distinctive features are the constant-speed motor which insures uniformity of speed and type impression, and a scientifically engineered keyboard with "finger-fit" keys molded to conform to the operator's fingers.

In addition to the usual pica and elite types, a new face known as "Remington Rand type," has been developed for this machine. It is designed for faster reading and clearer copies.

As a typist and her equipment represent an investment of about $2,500 a year, the more efficient the machine the more likely will her production meet the expense. For this reason, electric typewriters are coming increasingly into favor.

The full story of the advantages to be gained from the use of electric typewriters is available in a booklet "New Office Profits Thru Electricity" which can be obtained by writing direct to Remington Rand, Inc.

Executive Changes For Ryerson

W. Seymour, Jr. **C. L. Hardy**

William Seymour, Jr., has been elected vice-president; C. L. Hardy, assistant vice-president, and Thomas G. Miller, secretary, of Joseph T. Ryerson & Son, Inc., Chicago, Ill., steel distributors.

With Ryerson for 31 years, Mr. Seymour will be in charge of plant operations and service for the entire group of 13 Ryerson steel-service plants. Mr. Hardy joined Ryerson in 1927 at the company's Boston plant; his duties will be that of an executive in the procurement department. A graduate of Northwestern Law School, and a member of the Illinois Bar, Mr. Miller joined Ryerson in 1938 and was made assistant secretary of the company in 1946.

Present Hoist Lever Operates Loading Device Attachment

The Truk-Loder, for all makes and models of trucks, requires only a few minutes for attachment or detachment and operates from the hydraulic hoist and lever that are present on the truck.

Useful also for handling poles and sewer pipe and for similar work, the Truk-Loder attachment does a multiplicity of jobs such as scraping and scooping dirt, aggregate, leaves, snow. It has a capacity of ½ cubic yard in the bucket, 1.1 cubic yard in the scoop attachment, and loads the truck (within two or three minutes) from the side or the rear. Also available is a V-plow attachment that loads an average of 100 cubic yards per hour.

The loader, designed so that the cab operator can see all operations directly in front of him, is manufactured by the Truk-Loder Co., P. O. Box 515, Tiffin, Ohio.

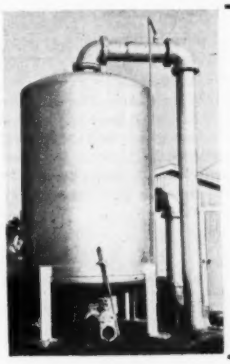
THERE'S A Cushman MOTOR SCOOTER FOR EVERY TRANSPORTATION NEED

CUSHMAN MOTOR SCOOTERS FIT MANY MUNICIPAL NEEDS!

For traffic control, parking meter service, all kinds of municipal inspection, and scores of other uses, CUSHMAN Motor Scooters have proved a practical, economical, *tax-saving* investment. Cushman gives up to 75 miles per gallon, cuts maintenance and replacement cost. Complete information at your Cushman dealer or

WRITE DEPT. AC-19

CUSHMAN MOTOR WORKS Inc.
LINCOLN NEBRASKA U.S.A.



Don't pump your pipe lines and water towers full of sand!
Use a

McCURDY
Sand and Water Separator

Vertical pressure type, helical flow, centrifugal action; built of fabricated steel for any capacity or working pressure. *Applicable also to other fluids. WRITE:*

McCURDY SAND AND WATER SEPARATOR CO.
4875 Pacific Blvd., Vernon 11, Los Angeles, Calif.

What it takes to stay heavyweight champ 17 years

1. Real heavy-duty truck reputation!

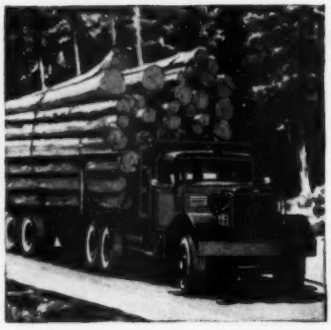
To haul lots of oil, you pick a he-man truck that's made for the job. You pick a truck with a record of performance that shouts "TOUGH!" You pick an International Truck.

Registration figures show that for 17 straight years Internationals have led the heavy-duty truck field.

2. Real heavy-duty power!

On construction jobs you need a truck that can take a pounding . . . a truck with a powerful engine, a rugged frame, sturdy strength through and through.

You find trucks like that at International Harvester . . . a builder of truck power for 42 years, a manufacturer who knows what tough trucks need.



3. Real heavy-duty truck engineering!

On big logging jobs you need size, brute strength and power . . . *specialized* by people who know your job in terms of trucks.

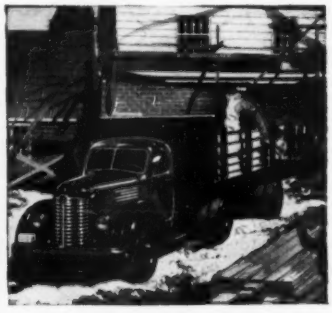
International heavy-duty trucks are big, tough, powerful—and *specialized* to handle the toughest hauling jobs. That's our engineering tradition.

5. That's why International trucks are heavyweight champs for heavy-duty jobs—

For 17 straight years, International heavy-duty trucks have been America's first choice for heavy-duty work. Registration figures prove it. In trucks having gross weight ratings over 16,000 pounds, Internationals are so far ahead of the field that the heavyweight crown carries a Triple Diamond emblem.

Right now, International Dealers and Branches can give you quick delivery on International heavy-duty trucks . . . specialized trucks, engineered and powered for your job.

Your nearest International Truck Dealer or Branch will be glad to send a qualified transportation engineer to analyze your hauling problem, to give you facts and figures on equipment to meet your specific needs, to answer any questions you may have. Call him soon.



4. Real heavy-duty truck stamina!

Housing is a big job where you measure truck toughness by years of getting the work out and keeping the costs down on all hauling operations.

You can count on years of service from International heavy-duty trucks. The nation's largest exclusive truck service organization is set up to keep Internationals operating at peak efficiency, over the long haul.

Other International Harvester Products
Farmall Tractors and Machines
Industrial Power . . . Refrigeration

Tune in James Melton and "Harvest of Stars"
CBS, Wednesday evenings

INTERNATIONAL TRUCKS

INTERNATIONAL HARVESTER COMPANY • CHICAGO

Parking Meters for Parking Lots

In addition to policing parked traffic on the streets, parking meters are performing the increasingly important job of policing and collecting fees for municipal parking lots. For this latter function a specific meter called the Park-N-Lot is offered by Magee-Hale Park-O-Meter Co., Commerce-Exchange Bldg., Oklahoma City 2, Okla. A new folder tells a comprehensive and particularly interesting story of both the street and the parking-lot meter.

Designed to meet requirements of municipal parking areas, the Park-N-Lot is equipped with a 10-hour dial. It is completely automatic in operation, and 90% of its mechanical parts are interchangeable with the regular Park-O-Meter for on-street installation. Time-settings are selective to permit parking charges ranging from as low as two hours for five cents up to 25 cents per hour. In one city a 62-car parking area is paying a return of $15.50 per day on a 5-cent-an-hour parking charge basis, each space earning approximately $100 per year, which quickly repays installation costs for the entire facility.

Park-O-Meter, for street parking, can be instantly readjusted to meet any changes in fees that may be voted by the City Council or Commission. Change from one-hour to two-hour parking is accomplished by shifting the position of the timer. Changes in the combination of pennies and nickels are made by loosening a screw and adjusting the timing ring.

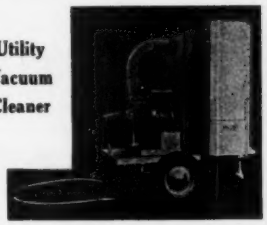
Magee-Hale is noted for the attention accorded the coin collector. In fact, the company offers a Quick-N-Safe Coin Collector as part of the Park-O-Meter system. The meter coin box accommodates a week's revenue and is located on the sidewalk side. Thus it dumps directly into the coin safe on the pneumatic-tired collector rolled along by the man-in-charge.

New Building For Walker Process

Walker Process Equipment, Inc., has moved its engineering offices, laboratories, and plant from 33 Hoyt Place to 518 Hankes Ave., Aurora, Ill.

Attention: Municipalities

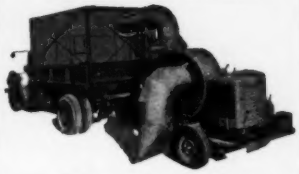
Utility Vacuum Cleaner



Solve your leaf or clean-up problem with a mechanized unit.

- low cost
- faster & cleaner

Vacuum Leaf Loader



Write for further information.

LEAF LOADER DIVISION
American Structural Steel & Tank Co.
M. A. Elliotte, Sales Manager
21050 W. 8 Mile Road
Detroit 19, Michigan

ASPHALT costs MONEY

Save it with the
FOOTE Kinetic ASPHALT MIXER

Asphalt is the expensive item in your patching, driveway, water-proofing and other asphalt mix problems. Because of the unusual mixing method employed by the Foote Kinetic Mixer you can get 8 to 10 batches more out of each barrel of asphalt. The design of the converter blade and cross mixing blades sets up a mulling action and forces the faster moving materials through the slow ones. In addition, the asphalt is introduced *under pressure* into the middle and *within* the aggregate stream. This assures every particle being coated completely and delivers a mix that no other small mixer of any type can equal with outstanding saving in asphalt. Write for Bulletin K-100. It tells the whole story.

- 3 cu. ft. in 30 seconds.
- High output for low investment
- Handles any cold mix without auxiliary equipment. Can handle hot mixes in conjunction with kettles.
- Fully portable.
- New mixing principle thoroughly coats every particle of aggregate. Gives you 8 to 10 more batches out of every barrel of asphalt.

the FOOTE Kinetic mixer

A BLAW-KNOX PRODUCT

THE FOOTE CO., INC.
Subsidiary of Blaw-Knox Co.

1958 State St. • Nunda, New York

In Madison, Wisconsin —

AUTOMATIC VOTING MACHINES REDUCE ELECTION COSTS

CITY CLERK A. W. BAREIS OF MADISON SAYS—

"We have proven conclusively that 29 precincts can handle our heaviest election with ease, as against 46 precincts required under our old paper ballot system. Needless to say, this has brought about substantial savings in election costs through the elimination of approximately 170 election booth workers. And with additional savings this will bring about the amortization of the entire cost of the voting machines out of savings in approximately 12 years."

MADISON WITH 46,534 REGISTERED VOTERS USES A TOTAL OF 102 AUTOMATIC VOTING MACHINES IN ITS 29 PRECINCTS. AT THE RECENT PRESIDENTIAL ELECTION, THESE MACHINES REGISTERED THE VOTES OF 35,804 MADISON VOTERS.

LET US MAKE A SURVEY TO DETERMINE POSSIBLE SAVINGS IN YOUR CITY. SUCH A SURVEY WILL BE MADE WITHOUT COST OR OBLIGATION.

AUTOMATIC VOTING MACHINE CORPORATION

Jamestown, New York

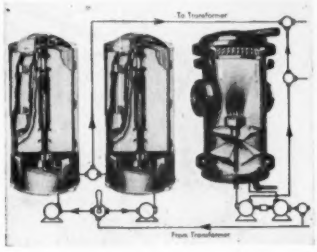
"Builders of Voting Machines Since 1898"

Oil Purifier For Electric Transformers

The Honan-Crane Corp., 986 Sixth St., Lebanon, Ind., is manufacturing a unit that is a complete system for purifying, dehydrating, and degasifying insulating oil either in the field or at a central-station location.

The Houdaille Purivac comprises dual Cranite purifiers, pumps and motors, a vacuum dehydration and degasification unit with high- and low-pressure pumps, central-operation panel board for all controls, inter-connecting piping, valves and accessories—all mounted on a floor truck or skid for portable use.

The equipment is designed for two-stage operation and the advantage of a separate purification and dehydration cycle lies in increased flexibility, the use of a smaller dehydration unit, and



longer nozzle life since only purified and filtered oil goes to the dehydration unit.

Since notable savings are realized from lower maintenance costs on transformers and other electrical apparatus using insulating oils, the cost of conditioning oil with this unit is low.

Donovan Appointed Manager Of San Francisco Branch

J. E. Donovan has been appointed manager of the San Francisco branch of Mack Truck, Inc., Empire State Bldg., New York 1, N. Y., assuming direction of one of the largest of Mack's 67 direct factory branches.

J. E. Donovan

During his 25-year service with the company, Mr. Donovan has held various positions that led to that of special sales representative.

Rubber Traffic Cone Keeps Traffic In Line

The Enterprise Development Corp., Dept. D, 231 W. Olive St., Burbank, Calif., has introduced a rubber traffic cone for positioning on traffic lanes during street repair or marking. It looks like steel but is collapsible to prevent possible vehicular accidents.

The traffic cones are placed in position to mark off an area that is scheduled for street-repair work.

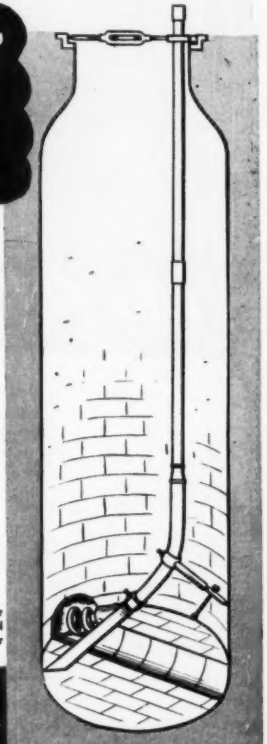
Durable, flexible construction results in economy through infrequent replacement because of breakage, distortion, or wear. The conical shape makes them easy to handle, place, and store.

NEW—"FLEXIBLE" LOWER MANHOLE JACKS SAVE TIME AND WORK AND EQUIPMENT

"FLEXIBLE" experience again provides new methods of simplifying tough jobs. These two new Lower Manhole Jacks brings sewer and line cleaning operations another step further into the open. They also speed tool changing. Note how the coupled rod guide is quickly, firmly, simply anchored at the bottom of the manhole. Also note that the face of the bell is held away from the lip of the sewer line itself. This enables operators to see roots before they jam tight in the rod guide.

Adjustable Back Jack (Optional use). Perfect for getting additional anchorage of rod guide. Sold separately.

Adjustable Foot Jack. Ideal for use with proven "Flexible" Steel Rod system of cleaning sewer lines. Sold separately.



Lower Manhole Jacks in position. Clear working face at sewer is provided as well as comfortably small amount of rod bend into sewer line.

ASK YOUR NEAREST "FLEXIBLE" OFFICE TODAY FOR FULL INFORMATION

FLEXIBLE SEWER-ROD EQUIPMENT CO.

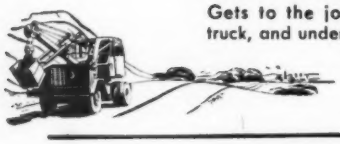
9059 Venice Blvd., Los Angeles 34, California

141 W. Jackson Blvd. Chicago, Ill.
401 Broadway New York 13
147 Hillside Ter. Irvington, N. J.
P. O. Box 165 Atlanta
2011 Central Ave. Memphis, Tenn.
801 E. Excelsoir Blvd. Hopkins, Minn.
29 Cordan Ave. Roslindale 31, Mass.
P. O. Box 447 Lancaster, Texas
41 Greenway St. Hamden, Conn.
3786 Durango Ave. Los Angeles 34, Calif.
909 N. Homewood Ave Pittsburgh 8, Pa.
4455 S.E. 24th Ave. Portland 2, Ore.

"Speaking of truck shovels.....

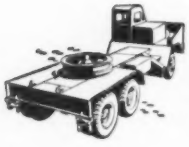
Why did you buy a MICHIGAN?"

"Because I figured competition's bound to get tougher.
I wanted a shovel that could cover lots of ground and make
better money on all kinds of jobs. Take it from *me*,
if you want to get the most for your money, get a MICHIGAN!



"IT'S FAST ON THE ROAD—
Gets to the job as fast as a truck, and under its own power.

"IT MOVES DIRT FAST—
Anyway you look at it, it's *yardage* that counts. MICHIGAN'S 5.4 RPM swing and fast air clutches give you the extra yards a day you're after.



"IT'S *REALLY* BUILT—
Any time you put a shovel on a truck you need a chassis that's designed for the job. And MICHIGAN *knows how*—they've built their own chassis for years.

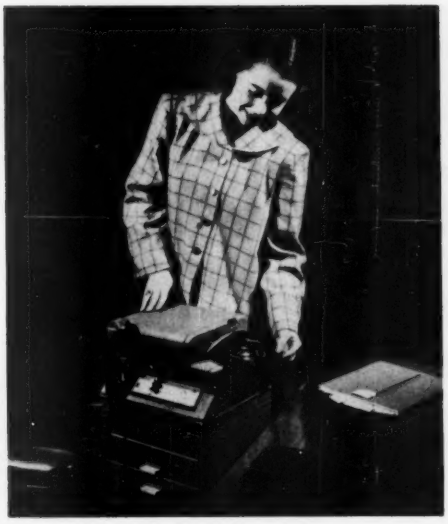
"IT'S EASY TO HANDLE—
You know that if a machine is rough on the operator he'll probably be rough on the machine. MICHIGAN'S air ram clutches are fast and easy. They take the work out of operating. That's why my operators like to run the MICHIGAN."

See MICHIGAN Truck Shovels at work on jobs like yours — write for Bulletin 100, "On The Job with MICHIGAN."

MICHIGAN

MICHIGAN POWER SHOVEL COMPANY, 373 Second Street, Benton Harbor, Michigan, U. S. A.

Disc Voicewriter

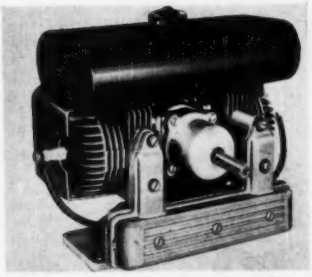


Putting the 7-inch erasable plastic disc on the new Disc Edison Voicewriter.

A new disc dictating instrument is announced by Thomas A. Edison, Inc., West Orange, N. J. Its 7-inch vinylite plastic disc records 30 minutes of dictation and is light enough to mail for three cents. The discs are erased by spinning at high temperatures. A special erasing service is to be offered users so that the cost of discs will average only six cents.

2-hp Engine Weighs 23 Pounds

Using new lightweight metals, a 2-hp air-cooled engine weighing only 23 pounds has been developed by Power Products Corporation of Grafton, Wis. Extremely compact, 11½" x 13½" x 14½" over-all, the engine can be used either vertically or horizontally, for



pumps, compressors, spraying equipment, lawn mowers, small boats, lighting plants, bicycles, scooters, etc.

Low capital investment, negligible maintenance cost and trouble-free operation are characteristics of water supplies obtained from

HORIZONTAL INFILTRATION COLLECTORS

Units constructed to date have a combined production capacity of over 450,000,000 gallons per day. The average cost of water, exclusive of power costs, is less than $0.015 per thousand gallons.

For Complete Details Address Inquiries to:

RANNEY METHOD WATER SUPPLIES, INC.

Ranney Water Collector Corporation of New York

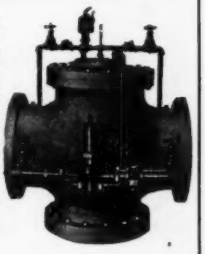
Water Supply Engineers and Contractors

Executive and Engineering Offices **Columbus 9, Ohio**

ROSS AUTOMATIC VALVES

Altitude Valves for tank and reservoir, with two sets of controls—Automatic Hydraulic and Electric Remote Control. Hydraulic pilot normally operates the valve, while electric pilot is used for emergency only.

Model 40-DAWR Double Acting Valve may be operated by electric pilot regardless of elevation of water in tank or reservoir, for a break in supply or distribution and when fire pressures require direct pumpage. Model 30 AWR Single Acting Valve may be controlled in same manner.



Model 40-AWR Single Acting semi-throttling valve will close on reversal of flow and the electric pilot would serve only a single purpose—either to open wide or close as emergency may require.

Established 1879

ROSS VALVE MFG. CO.

Incorporated

P.O. BOX 596, TROY, N.Y.

It's a Burroughs!

8-Column Adding Machine Capacity 999,999.99

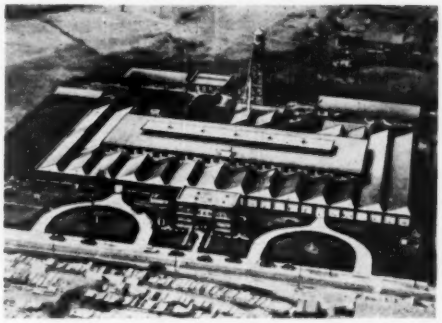
Only huge volume production to meet great popular demand makes it possible to offer this famous Burroughs adding machine at so low a price. Fast, accurate, dependable, it's a Burroughs through and through . . . precision-built to the high standards that have made Burroughs the most-used adding machines in the world.

Your local Burroughs representative can show you why a Burroughs at only $125.00 will outperform and outlast any other adding machine in its price field. Give him a call *now*, or write Burroughs Adding Machine Co., Detroit 32, Mich.

and only $125

WHEREVER THERE'S BUSINESS THERE'S **Burroughs**

Line Material's New Birmingham Plant



This is the new large modern plant that replaces the present manufacturing facilities in Birmingham, Ala., for the Line Material Co., Milwaukee 1, Wis. The new buildings, under the supervision of M. L. Ruggieri, have 165,000 square feet of space—more than four times as much as the previous plant.

FM Two-Way Radio On Police Motorcycles

FM two-way radio, which enables an officer to contact headquarters by simply pressing a button, is now available for factory installation on the new motorcycles and Servi-Cars manufactured by the Harley-Davidson Motor Co., Milwaukee 1, Wis. The new Motorola designed sets operate in the 152-162 megacycle band, and there will be 30- to 40-megacycle equipment also, which will be ready by next April.

Among the first police departments to obtain frequency-modulated voice on their new Harley-Davidson models are Montgomery, Ala.; Chico, Calif.; San Jose, Calif.; Miami, Fla.; Plymouth, Ind.; Baton Rouge, La.; Shreveport, La.; Omaha, Neb.; Wilmington, N. C.; Austin, Texas, and Neenah, Wis.

Portland Cement Changes In Research Personnel

Harrison F. Gonnerman, Director of Research of the Portland Cement Assn., 33 W. Grand Ave., Chicago 10, Ill., has been advanced to the position of assistant to the vice-president of Research and Development, and Hubert Woods, research director of the Riverside Cement Co., Los Angeles, Calif., has been chosen Director of Research for the Association.

COMING TO
CLEVELAND
NEW
VISIT THE HOLLENDEN... COMPLETELY REDECORATED!

★ 1000 ROOMS WITH BATH
★ RADIO IN EVERY ROOM
★ SIX FINE RESTAURANTS
★ CENTRAL DOWNTOWN LOCATION
★ GARAGE ATTACHED

HOTEL HOLLENDEN

Robert P. Joyce, General Manager

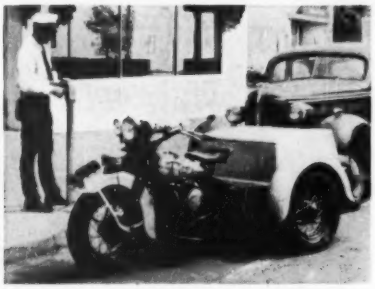
Home of the famous Vogue Room

THEY TELL ME THE PARTS IN THIS WATER METER ARE INTERCHANGEABLE -
YES, AL, THAT'S TRUE. OUR BUFFALO METERS ARE FULLY INTERCHANGEABLE -- PART FOR PART, NOT JUST UNIT ASSEMBLIES !
● The individual parts . . . measuring chamber halves, gears, bearings, and all internal parts in AMERICAN and NIAGARA Water Meters have been *fully interchangeable* for many years . . . cutting maintenance costs to a minimum.
AMERICAN BRONZE CASE
NIAGARA GALV. IRON CASE
WATER METERS
BUFFALO METER COMPANY
2902 MAIN STREET, BUFFALO 14, N. Y.

For many years HACKENSACK, N.J., POLICE have used HARLEY-DAVIDSONS *Exclusively*

Shown with his fine motorcycle squad is Chief of Police William Munz of Hackensack, N. J. and (l. to r.) Sgt. James Perone, Supt. of Traffic; Sgt. Kenneth Bratt; Officers Arthur Dean and Richard Munz.

Motorcycles prove invaluable for wide range of police work



Hackensack finds Servi-Cars unsurpassed for checking and servicing parking meters, and for marking parked cars. As in many other cities one man on a Servi-Car is able to check as many meters as three or four men on foot.

AS A NEIGHBOR of great eastern metropolitan centers, Hackensack, New Jersey, has traffic problems that might easily overtax the capacity of its efficient police department. However, as in hundreds of other cities the country over, Hackensack police multiply the use of their manpower and increase their patrolling effectiveness with Harley-Davidson Motorcycles. In fact, Harley-Davidsons have helped to reduce accidents and improve control of traffic in Hackensack for many years.

Your city also can extend the effectiveness of its police department, improve traffic control and reduce accident rates through the use of Harley-Davidson Police Motorcycles, Servi-Cars and sidecars. Phone your dealer today for information about Harley-Davidson advantages.

HARLEY-DAVIDSON MOTOR COMPANY, Milwaukee 1, Wisconsin

HARLEY-DAVIDSON

MOTORCYCLES POLICE BETTER TRAFFIC CONTROL *SERVI-CARS*

Line Material Appoints Representatives

J. L. Shannon

R. L. Mansur

W. E. Goodman

J. L. Shannon, R. L. Mansur, and W. E. Goodman have been appointed by the Line Material Co., Milwaukee, Wis., as field engineers to serve in the Detroit, Boston, and Memphis territories.

Formerly sales manager of the Morton-Gregory Corp., J. L. Shannon has joined the Westinghouse Electric Corp. on graduating from Norwich University. The Georgia Power Co. and the Anderson Brass Works in Birmingham, Ala., took over W. E. Goodman's education after he was graduated from college.

Standard Oil Consolidates Asphalt Business, Subsidiaries

The Standard Oil Co. of California has consolidated its western asphalt business and that of its subsidiaries under the new company, Stancal Asphalt & Bituminous Co., 200 Bush St., San Francisco, Calif.

With C. W. Stewart as president and N. H. Angell vice-president in charge of sales, the company includes the former California Asphalt Corp., the Asphalt Div. of Standard of California, and the western portion of the American Bitumals Co. (this company will continue to operate east of the Rockies as a subsidiary.).

Stancal will market bitumuls and Laykold emulsied asphalts, paving and cutback asphalts, and road oils in the territory west of the Rocky Mountains.

F. W. James Dies

Frederic W. James, chief engineer of the N. P. Nelson Iron Works, Inc., 820 Bloomfield Ave., Clifton, N. J., died recently.

Mr. James came to this country from England at an early age; in 1922 he joined Nelson and worked up to chief engineer. During his 27 years with the company he was responsible for much of the design and engineering of the Nelson material and snow loaders.

SALES ENGINEER WANTED

To represent an old established manufacturer of Water Works equipment in an Eastern territory. Must be an experienced salesman or have water utility experience. Permanent Position—Salary and Bonus.

Interview arranged on basis of letter stating educational background, experience, availability, salary desired and other pertinent information. If possible, enclose a recent photograph. References — replies held in confidence.

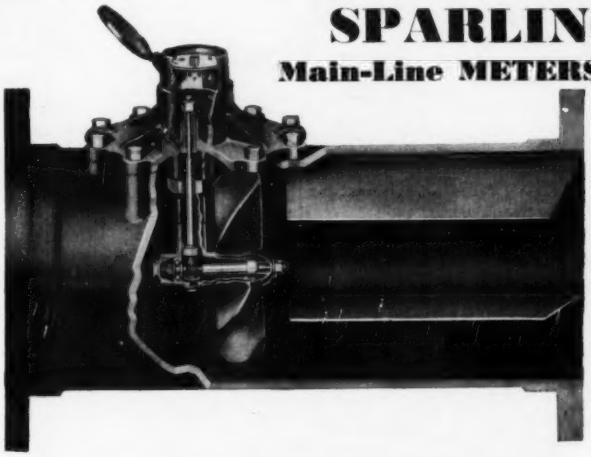
Address Box #304

THE AMERICAN CITY

470 Fourth Ave., N. Y. 17, N. Y.

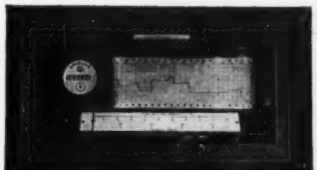
SPARLING

Main-Line METERS



The "Direct Action" Meter

The Sparling Main-Line Meter totalizes directly at the meterhead—no further instrumentation necessary! The meter is as easily installed as a length of the pipe itself. For Service and Satisfaction over long years, with Low Head Loss, choose the Sparling.



INDICATORS—RECORDERS—CONTROLS

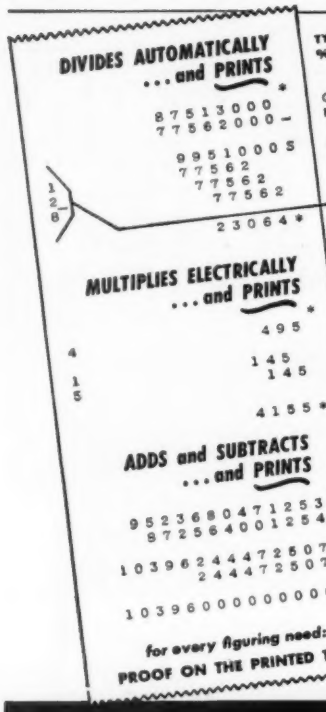
For reading and recording flow-rates, a wide variety of equally accurate instruments is available. Also Controls for auto-metered chemical feeds.

Quotations gladly given. Bulletin 310 comes upon request.

R. W. SPARLING
Manufacturer of WATER MEASURING EQUIPMENT

LOS ANGELES 54...Box 3277 Terminal Annex
CHICAGO 8.....1500 South Western Ave.
BOSTON 8.....6 Beacon Street
622 Broadway.....CINCINNATI 2
101 Park Avenue.....NEW YORK 17
1932 First Avenue.....SEATTLE 1

"Only the Remington Rand Printing Calculator gives you printed figure facts"



TYPICAL PROBLEM:
% SALES INCREASE

CURRENT MONTH'S SALES
PRIOR MONTH'S SALES

AMOUNT OF INCREASE
÷ PRIOR SALES

12.8% INCREASE

TYPICAL PROBLEM:
INVOICING

4 DOZ. @ $4.95/DOZ.

15 ITEMS @ $1.45 EACH

AUTOMATIC TOTAL
$41.55

ADDS

SUBTOTALS
SUBTRACTS

AUTOMATIC TOTALS
TO 100 TRILLION

"FOOLPROOF!" you'll say of the Printing Calculator, because it automatically *prints* every factor and answer on the tape. No squinting at hard-to-read dials, no repeating problems for proof . . . a glance at the tape tells you you're right—right away! And, of course, the printed tape gives you a permanent record of the figure facts on which you base important decisions.

Whatever your figuring needs, the electrified Printing Calculator provides faster, easier, less costly operation, with 10-key touch control, "hand-span" feature keys, automatic completion and clearance. And, best of all, with the printed tape, you have an electric adding-listing machine too—*two* fine machines for your one modest investment.

For the whole cost-cutting story, call your local representative, or write for free booklet "Command Performance", to Remington Rand Inc., Dept. AC-2, 315 Fourth Avenue, New York 10, N. Y.

the new **Remington Rand** automatic Printing Calculator

Don't Waste Water, Steam

Listening for the sound of escaping water.

The Globe Geophone Leak Locator keeps water and steam systems waste-proof, preventing these two municipal products from dribbling away to the accompaniment of lost revenue: a leak the size of a pin can waste as much as 300,000 gallons of water in a year.

Operating mechanically on the principles of the seismograph, the instrument picks up the sound of a leak and then locates the exact position of the defective pipe. Expensive surveys, haphazard digging, and consequent street-paving replacement are avoided.

The Geophone, manufactured by the Globe Phone Mfg. Corp., Dept. Y, Reading, Mass., picks up leak sounds from 50 to 75 feet away, within 10 to 15 minutes, the exact spot is located.

Smith-Blair Appoints Couse Eastern Division Manager

Smith-Blair, Inc., P. O. Box 205, South San Francisco, Calif., manufacturer of waterworks supplies and specialties, has appointed W. H. Couse its eastern division manager, with headquarters in East Orange, N. J.

W. H. Couse

The New Jersey offices carry complete service and stocks of flexible couplings, service and repair clamps, and waterlock rings.

12-hp Heavy-Duty Chain Saw

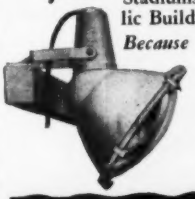
Henry Disston & Sons, Inc., 1265 Tacony, Philadelphia 35, Pa., is making a two-man 12-hp chain saw that handles the difficult job of cutting wet, frozen, or hard wood.

Powered by a light-weight Mercury gasoline engine, the saw has a new-shaped abutment plate which prevents the engine from pulling under the log as the cut is completed. The automatic chain lubricator is designed to eliminate operator control, and perfect oiling is achieved in whatever position the saw is operating.

MORE *cities, towns and villages buy* Revere ELECTRIC MFG. CO.

FLOODLIGHTING *for* Playgrounds, Beaches, Stadiums, Airports, Public Buildings, etc.—

Because They're Better!



No. 4203 — Enclosed Flood. 750 - 1,000 - 1,500 Watt. Weatherproof, easy to service unit has rotation feature with degree markings.

WRITE FOR CATALOG

REVERE ELECTRIC MFG. CO.

6015 BROADWAY CHICAGO 40, ILL.

HOW'S YOUR SIGN and SIGNAL I.Q.?

Q. Which Signs require less maintenance?

A. CATAPHOTE'S Bonderized, Galvanized Metal Signs!

Q. Which reflector signs last longer?

A. CATAPHOTE'S Glass Reflector Buttons in High Quality Enameled Steel Signs!

Q. Which type gives best all-weather visibility?

A. CATAPHOTE'S Reflector Button Signs Do *NOT* Black Out in Heaviest Weather

P. S... Get the best! Have your engineer specify Cataphote!

WRITE FOR CATALOG!

SIGNS & MARKERS
STREET NAME SIGNS... SIGN POSTS
DANGER SIGNALS

CATAPHOTE CORPORATION
TOLEDO, OHIO

MORE and MORE

modern cities

are using

MARBELITE

TRAFFIC SIGNALS

and

CONTROLLERS

New York

Chicago

Seattle

Philadelphia

Los Angeles

New Orleans

Mail this coupon for complete details and specifications of Marbelite Traffic Signals and Multi-dial Controllers . . .

The Marbelite Company, Inc.
26 Warren Street, New York 7, N. Y.

Gentlemen: Please send me complete details and specifications of Marbelite Traffic Signals and Controllers.

NAME .....

ADDRESS .....

THE MARBELITE COMPANY, INC.

26 WARREN STREET NEW YORK 7, N.Y.

ACT ON FACTS

These are the facts:

Production of Murdock Hydrants and Outdoor Drinking Fountains is not equaling demand, because

Copper continues scarce.

And Murdock working parts, as of old, will continue to be made of Phosphor Bronze, Red Brass.

Get orders in early if you want early deliveries.

The Murdock Mfg. & Sup. Co.
426-430 Plum St., Cincinnati 2, Ohio

MURDOCK

Water-Sewerage Supt.

Wanted

Winston-Salem, N. C. (Pop. 80,000) wishes to employ a well-qualified engineer for position of Superintendent of Water Works and Sewerage.

Give complete information as to education, experience, references and salary desired. Applications will be kept confidential on request. Address:

C. E. Perkins, City Manager
City of Winston-Salem, N. C.

CAST IRON PIPE

Bell and Spigot—Class 150 and 250

2,100 ft.	4 in.	14,250 ft.	10 in.
21,000 ft.	6 in.	3,000 ft.	20 in.
26,260 ft.	8 in.	11,000 ft.	24 in.

12-foot and 18-foot lengths

Immediate Delivery—Any Quantity

Write — Wire — Phone

SONKEN-GALAMBA CORPORATION
2nd and Riverview (X-414) Kansas City 18, Kansas
Phone: THatcher 9243

Maintenance

made easy and economical with the

OLIVER-HENKE MAINTAINER

Here's a light, economical road maintainer that gives you many features usually found only on much heavier, more costly machines. Rugged construction . . . finger-flip hydraulic controls . . . blade angle easily adjusted from driver's seat . . . leaning wheels . . . hydraulic scarifier . . . hydraulic steering . . . 12-foot blade . . . plus many other important advantages are yours with the OLIVER-Henke Maintainer.

The powerful OLIVER Model 88 Industrial Tractor gives the unit plenty of power for economical maintenance of gravel and dirt roads and light ditching work. The famous OLIVER "Fuel Miser" engine with variable speed governor assures minimum fuel consumption. The entire unit is easily accessible for service. All wearing parts can be inexpensively replaced if necessary. And, if desired, the tractor can be readily removed from the Maintainer and a front-end loader quickly installed.

For efficient, economical road maintenance, the OLIVER-Henke Maintainer will effectively augment your heavy equipment and do a large share of the work at reduced operating costs. Ask your OLIVER Industrial Distributor to show you the outstanding economy of this unit.

The OLIVER Corporation

Industrial Division: 19300 Euclid Avenue, Cleveland 17, Ohio

"THE SIGN OF EXTRA SERVICE"

A Complete Line of Crawler and Industrial Wheel Tractors

for a Cleaner City . . . a Lower Budget . . .

it's the DEMPSTER DUMPSTER® *system!*

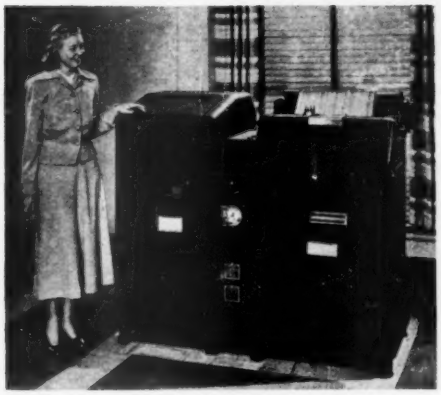
Three great advantages of the Dempster-Dumpster System are SANITATION, CLEANLINESS and ECONOMY. Its sanitation and cleanliness are due to the completely enclosed steel containers which receive trash and rubbish as it accumulates. Once the rubbish is inside container, it can't be scattered and littered over streets and alleys by wind or scavengers . . . and, more important, it can't be contaminated by rats or flies. Its economy and efficiency of operation are naturally attractive to any BUDGET-MINDED Municipality. When you consider that one Dempster-Dumpster truck hoisting unit and one man, the driver, can handle a large number of these detachable containers and serve an amazingly large area of your city, for bulk trash and rubbish collection, you'll realize why one Dempster-Dumpster can do the work of 5 to 10 conventional trucks and crews. Savings in gas, oil, tires, maintenance and equipment investment is amounting to thousands of dollars annually to cities like Baltimore, Richmond, Birmingham, Pensacola and scores of other large and small municipalities. The simple operation of this system is illustrated in the photographs at right. Ask today for complete information.

The amazingly simple stages of picking up, hauling and dumping the detachable containers are shown in the three photos above. In the top photo, driver has backed the truck hoisting unit up to an 8 cu. yd. Apartment Type Container, attached two chains and returned to the hydraulic controls in the truck cab. In center photo, container has been hydraulically lifted into carrying position ready for hauling to disposal area for automatic dumping as shown in the bottom photo.

DEMPSTER BROTHERS, Inc.

829 Dempster Bldg. **Knoxville 17, Tennessee**

That Hard Working Family of Tabulating Machines



Remington Rand alphabetical tabulator — with instantaneous punch, prints numbers and letters anywhere on report.

A prominent official of a city of 250,000 said not very long ago: "Tabulating equipment? It's very good but not for us. It's for the big city."

However, a number of cities not one-tenth the population of his are using tabulating equipment successfully. Tabulating machines are flexible—individually and in combination. The right combination of them will do all the accounting and statistical work of an entire municipality. A minimum combination will do the work of a town or of a single municipal department—such as the finance, police, public works or welfare.

Individual machine flexibility is due to their incessant improvement. This factor is noteworthy because tabulating machines are comparatively young. The oldest which is the Punch, is only forty-one years old, whereas the youngest, the Model 3 Alphabetical Tabulator, Summary Punch Tabulator, is two. Here is the way the family grew:

1908—the first die-set punch was born. It's education (successive improvement) included combination automatic feed and touch method operation, alphabetical ability, and an electrified keyboard. Today it is a key punch, a verify punch, duplicating punch—all in one.

1912—when the punch was four years old it was joined by the first horizontal sorting machine and became the first card counter. Today it sorts punched cards into the sequence needed for any report.

1913—a year later, Punch and Sorter welcomed the first tabulator to print. In ten years it could accumulate and print totals and grand totals. Today it adds, subtracts, totals, and prints 100 numbers or letters on one line, and all automatically.

1925—you could say twins when the first typewriter to be electrically attached to a punch for automatically punching the routine work done on a typewriter into tabulating cards came into being.

1929—was greeted by the first Alphabetical Interpreter which prints on the cards the meaning of the punched holes.

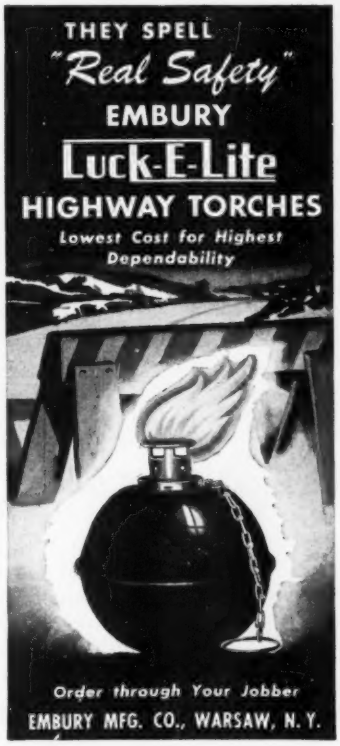
1930—the Reproducing Punch that makes new sets of cards from old.

1932—the Verifier that searches tabulating cards for errors and pitilessly exposes even the mildest mistake.

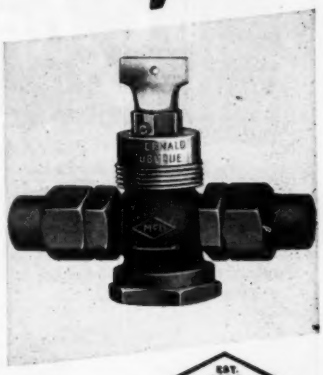
1933—the Alphabetical Tabulator that prints 100 lines a minute.

1935—the Printing Multiplying Punch that prints as it calculates costs, payroll, and tax extensions.

1938—the Multi-Control Reproducing



rugged and right!



McDonald

Diamond Line Curb Stops

For 92 years users have known that McDonald Diamond Line waterworks items are the last word in dependability and correctness. Produced from quality 85-5-5-5 metals with highest mechanical exactness, they're designed to give years and years of service.

The Diamond Patent Cap Inverted Key Curb Stop illustrated (Plate E-4717 Minneapolis Pattern) is an example of McDonald quality. This is a round way stop and is designed for copper service pipe at both ends. The inverted key avoids excessive wear and is a favorite with maintenance men. Key is loosened as pressure is applied downward in a turning motion. Sizes ½, ¾, 1, 1¼, 1½, and 2 inch. Also available in stop and drain pattern. Write for prices and information.

A. Y. McDONALD MFG. CO.

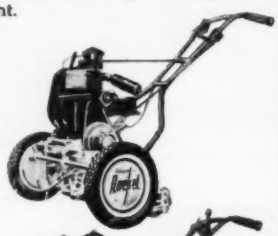
DUBUQUE, IOWA

BRASS GOODS • PUMPS • OIL EQUIPMENT

POWER LAWN MOWERS by Eclipse

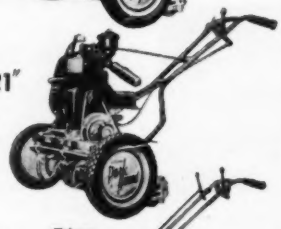
Only Eclipse offers all of the features looked for in power lawn mowers. These are the outstanding and exclusive features that assure trouble-free, long lasting and economical mowing perfection.

A complete line of power mowers provides exactly the right model to satisfy every grass cutting requirement.



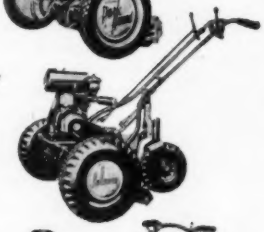
ROCKET 20″

This popular favorite is unexcelled in performance and economy. Excellent for maintaining beautiful lawns of schools and public buildings.



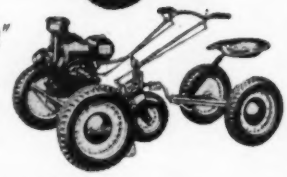
PARKHOUND 21″

Perfect for cemetery use, this durable model offers unmatched mowing of from two to four acres per day at minimum cost.



ROLLOWAY 25″

Preferred for larger areas such as parks, the full swivel caster-wheel permits short turns in close quarters. Plenty of power for steep slopes and terraces.



SPEEDWAY 32″

Large lawn areas are smoothly mowed at the rate of a 32″ swath 100 yards long every 30 seconds. Easy handling and operator comfort are provided by the sulky.

WITH THE PREFERRED POWER OF

No mixing of gas and oil—less smoke—less noise.

4 CYCLE BRIGGS & STRATTON GASOLINE ENGINES

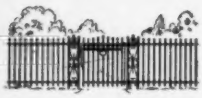
THE ECLIPSE LAWN MOWER CO.
1802 Railroad Street, Prophetstown, Illinois

Stewart Chain Link Wire Fence is available in several heights, weights and styles to meet the degree of protection desired.

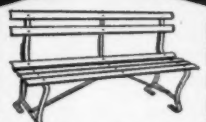
● **Stewart Chain Link Wire and Plain or Ornamental Iron Fences and Entrance Gates** are made in a sufficiently wide range to adequately cover the fencing requirements of all classes of public property.

DON'T OVERLOOK STEWART
If your plans call for Iron or Wire fencing

Stewart Plain or Ornamental Iron Fence is made in a wide



variety of designs for all classes of public property.



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Apply to C. E. Perkins, City Manager
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(*Continued from Page 189*)

Punch that can reproduce an entire set of cards, repeat-punch any number of cards from one, compare two sets of cards and segregate the cards that match from the cards that do not match.

1942—the Posting Interpreter that used the card as a ledger, printing any record desired on handy punched cards.

1943 — the Interfiling Reproducing Punch compares, punches, interfiles and segregates cards for producing reports, analyses, invoices, payrolls, etc.

1947—the baby, Instantaneous Summary Punch, shown here, punches summaries of your business figures into summary cards the instant they are printed on your reports.

All twelve basic machines bear the family traits of great speed and complete accuracy. Each appeared when the need for it became evident. Their portraits and biographies are available in a handsome, free brochure upon request from Remington Rand, Inc., New York 10, N. Y. Together these machines constitute the Remington Rand family of tabulating machines. Three of the members—Punch, Sorter and Tabulator —can do the paper work of any municipal department or town.

De Leuw, Cather Opens Western Office

De Leuw, Cather & Co., Engineers, 150 North Wacker Dr., Chicago 6, Ill., has established a Western office at 79 McAllister St., San Francisco 2, Calif., under the supervision of Henry K. Evans and Gustave E. J. Jamart, staff engineers of the company.

C. E. De Leuw

The firm offers services on plans, specifications, surveys, appraisals, and studies of urban transportation, traffic and parking problems, power plants, tunnels, highways, and municipal works.

Gillespie New President Of Western Railroad

Succeeding the late Godfrey Gort, Stanley E. Gillespie, formerly vice-president of the Western Railroad Supply Co., 2428 S. Ashland Ave., Chicago 8, Ill., has been elected president.

Three New Officers For Thompson Materials

The Thompson Materials Corp., 303 Cortlandt St., Belleville 9, N. J., has elected three new officers:

E. J. Savage has ben elected executive vice-president and general manager in charge of sales; A. J. Zimmerman, vice-president in charge of specialty products, such as calcium chloride and asphalts, and J. Charles Huber, treasurer.

Okonite's President, F. C. Jones, Dies

Frank Cazenove Jones, president and general manager of The Okonite Co., Passaic, N. J., died recently, at the age of 61.

The son of one of the founders of the company, Mr. Jones started his business career with B. T. Babbitt, Inc., and later was treasurer of Edgar A. Wilhelmi, Inc., export agents. In 1914 he established an importing business, Jones and Cammack. Following the death of his father, he became a director at Okonite and in 1919 was elected treasurer and general manager. In 1932 he became president. He was also president of The Okonite-Callender Cable Co., Inc., of Paterson, N. J.

Caterpillar Appoints Managers

Three assistant divisional-parts managers have been appointed by the Caterpillar Tractor Co., Peoria, Ill.: T. A. Dunne, J. E. Ferguson, and W. R. Owens.

Mr. Dunne will serve in the Eastern Division with manager, B. J. Grimm, and assistant, J. F. Heschong; Mr. Ferguson with the Central Division manager, Thomas H. Hodgin, and assistant, C. F. Cummings, and Mr. Owens with the Western Division manager, Herman F. Haven, and assistant, W. E. Doersam.

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Warren fittings, like Warren pipe, are made in all sizes and to all standard patterns for use with cast iron pipe of standard designs.

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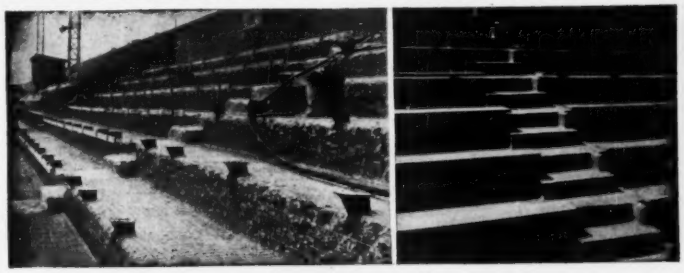
GENERAL OFFICES—ALLENTOWN, PENNA., U.S.A.



SAVED WITH "GUNITE"!

Above is shown the stadium of Sharon High School at Sharon, Penna. This is a poured concrete structure, built in 1933, and after only eight years disintegration was very serious and endangered the stability of the structure.

In 1941 we were called upon to strengthen and recondition this stadium, which we did with reinforced "GUNITE" of two inch minimum thickness.

The view to the left shows the chipping and sandblasting completed and the reinforcing mesh in place. To the right is the completed job, better than when new.

This is just one of many similar and kindred jobs which we have done with "GUNITE," dozens of which are described in our Bulletin D2400.

Write today for your free copy of bulletin D2400.

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You've never seen such a mimeograph

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Now add sturdy construction for continuous trouble-free operation, built-in features that handle a variety of jobs and the availability of special accessories to speed up and simplify systems work.

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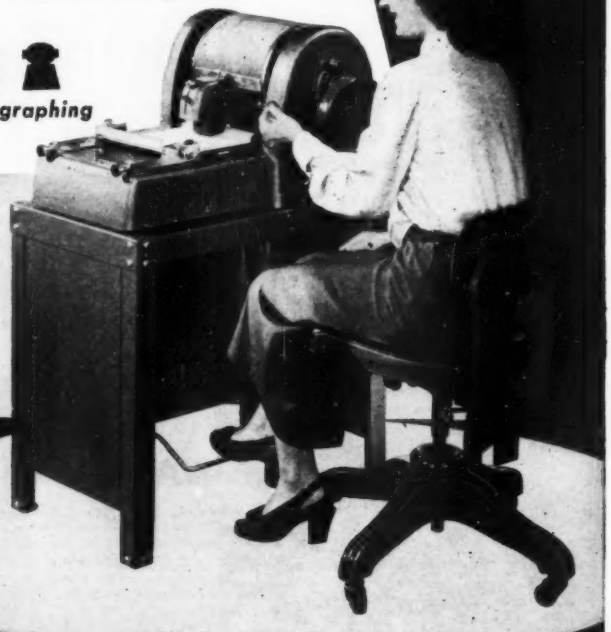

and now the mimeograph operator sits down too →

Shown at right is the model 27 A. B. Dick mimeograph stand with built-in foot control for fast fatigue-free operation.

Skinner Celebrates Golden Anniversary

A Skinner bell-joint clamp being installed on a broken water main.

The M. B. Skinner Co., South Bend 11, Ind., manufacturer of specialized pipe-repair clamps and allied products for water, gas, and power mains and pipeline, is celebrating 50 years of business life.

A pioneer in profit sharing, Skinner made several other innovations—at the time—in running a firm. Although the Skinner factory looks like a well-kept private estate today, a high percentage of all orders are shipped the same day as received.

Northrop Adds Germicide To Sulphur Joint Compound

Northrop & Co., Inc., Spring Valley, N. Y., has added a germicide to all Bond-O self-caulking jointing compounds, resulting in an inhibition of oxidation of the sulphur in the compound by sulphur bacteria

This practice has been inaugurated although disintegration of Bond-O from the sulphur bacteria has never been noted.

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STREET CLEANER'S CART

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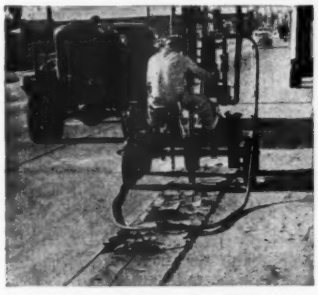

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Other smaller flange fittings in stock

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We cut pipe to your measurement.

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Hempstead, Long Island, New York

Schum Appointed By Lima-Hamilton

Eugene C. Schum has been appointed a diesel-engine sales manager of the Hamilton Division of the Lima-Hamilton Corp., Lima, Ohio, according to an announcement by Walter A. Rentschler, vice-president.

Eugene C. Schum

A graduate of the U. S. Navy's Internal Combustion Engine Section, Bureau of Ships, Mr. Schum's previous civilian experience was with the Nordberg Mfg. Co.

Worthington Moves to Augment Construction Sales

In line with an intensified program of the Worthington Pump and Machinery Corp. for the distribution and sale of portable air compressors, air tools, portable pumps and Worthington-Ransome road-paving equipment and concrete mixers, Carl F. Oechsle, assistant vice-president and manager of the Construction Equipment Dept., will in the near future be transferred to the executive offices at Harrison, N. J.

Carl F. Oechsle

Additional regional supervisors for construction-equipment sales have been set up in Atlanta, Ga., and Tulsa, Okla., with R. F. Litaker assigned to the post in Atlanta, and R. G. Barz in Tulsa. At the Washington, D. C., office J. S. Dachman succeeds H. C. Sargent as construction equipment regional supervisor.

LeTourneau Appointments

Four new district sales representatives have been appointed by R. G. LeTourneau, Inc., Peoria, Ill., manufacturers of earthmoving and constructions equipment.

Steve A. Batorson has been named district sales representative for northeastern United States and eastern Canada, with headquarters in Syracuse, N. Y. With LeTourneau since 1943, Mr. Batorson joined the sales division in 1945, first as market analyst and then as market research coordinator.

Lower New York, upper New Jersey, Pennsylvania, and Maryland are the territories covered by Fran W. Duke, who also joined the company in 1943.

With many years' experience behind him of serving equipment companies in the United States, Canada, Latin America, and South America, M. B. Crowley will take over Virginia, West Virginia, and North and South Carolina, directing operations from Raleigh, N. C.

M. B Crowley Steve A. Baterson

Giving sales assistance to LeTourneau distributors in Oklahoma, Arkansas, Mississippi, Louisiana, and western Tennessee, Jim Sevick has spent the past few months of his LeTourneau career as assistant to the Western sales manager.

Jim Sevick Fran W. Duke

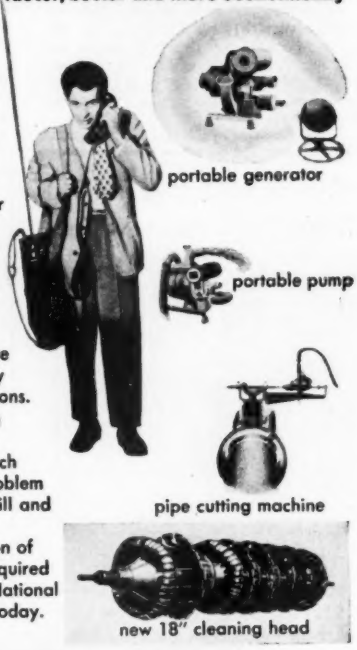
all this and radio too,

helps NATIONAL clean water mains faster, better and more economically

The highly specialized equipment employed by the National Water Main Cleaning Co. today includes: walkie-talkie radio systems for maintaining constant communication between the point of operation and control valves or pumping stations, magnetic locators for tracing underground pipe, truck-mounted pumps for dewatering, trailer-mounted booster pumps for stepping-up pressure, pipe cutting machines and a tremendous variety of cleaning heads developed to meet the requirements of varying pipe sizes, conditions and layouts.

Even more important than adequate equipment is the experience necessary to cope with all conditions and situations. The nature of the obstruction, varying pipe sizes, unusual pipe layouts, the character of the water — all make each cleaning assignment an individual problem calling for specialized experience, skill and equipment.

We'll be glad to check the condition of your water mains, recommend the required treatment and estimate the cost of National Water Main Cleaning service. Write today.



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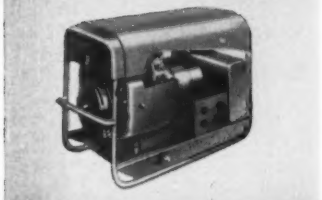

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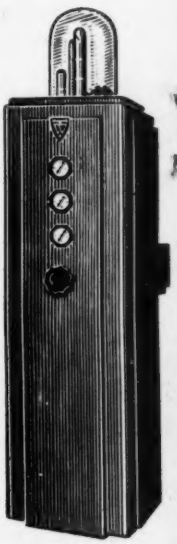

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